



# YORK<sup>®</sup>

## YVAG AIR-COOLED DC INVERTER HEAT PUMP WITH HEAT RECOVERY HOT WATER SYSTEM

Installation , Operation & Maintenance Manual

FORM NO.: 6U5M-A18G-NA-EN

YVAG012HSE

YVAG014HSE

YVAG016HSE

YVAG020HSE

YVAG022HSE

YVAG025HSE

YVAG028HSE

YVAG033HSE

YHT100W5

YHT150W5

YHT200W5

YHT300W5

YHT500W5



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## FOREWORD

The production of the Air-Cooled Chiller and Heat Pump Unit shall strictly follow the design and production standards to ensure that the unit provides high-quality operation, high reliability and excellent adaptability.

This manual contains the information necessary for proper installation, commissioning, start-up and maintenance. For the best use of this equipment, please read this manual and various labels posted on units and components carefully before installing, starting or overhauling the machine.

Do not operate the machine if you do not fully understand the working principle of the unit, or don't have sufficient safety knowledge, and fail to take the relevant safety protection measures, so as to avoid personal danger and unit failure.

Therefore, we recommend that the installation and commissioning of the machine should be done by specially trained personnel.

The warranty coverage must meet the following conditions:

The installation must be carried out by trained professionals.  
The start-up of the machine must be carried out by professional maintenance personnel of the professional York Company Maintenance Service Center or designated special company personnel.  
Only use the various spare parts provided by York Company.  
All machine operation and maintenance items specified in this manual must be carried out in strict accordance with the specified time and frequency.  
The warranty shall automatically become invalid in case of violation of any of the above conditions.

The personnel responsible for the installation of the machine shall ensure the installation process is carried out safely and he shall also be responsible for the installation of all refrigerant pipelines, conduits, electrical installations and other necessary ancillary equipment.

York Company shall not be liable for any personal injury or machine damage caused by improper installation and commissioning, unnecessary maintenance, or non-compliance with the provisions and instructions in this manual.

Should you have any questions during the installation, please contact York Company and its various local offices.

## GENERAL SAFETY GUIDELINES

This equipment is a relatively complicated apparatus. During rigging, installation, operation, maintenance, or service, individuals may be exposed to certain components or conditions including, but not limited to: heavy objects, refrigerants, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of rigging, installation, and operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in which it is situated, as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized rigging, installation, and operating/service personnel. It is expected that these individuals possess independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual shall have read and understood the on-product labels, this document and any referenced materials. This individual shall also be familiar with and comply with all applicable industry and governmental standards and regulations pertaining to the task in question.

Pay attention to keep this document and you can acquire it from local authorized YORK service center in case it would be lost.

### SYMBOLS USED IN THE MANUAL

 **"Warning"**: The warning must be observed to avoid physical injury or even death to the user.

 **"Caution"**: The warning must be observed to avoid damage to parts.



#### Warning

1. The installation must be carried out by trained professionals, Don't start work without authorization. Improper installation will cause leakage, electric shock or fire.
2. The start-up of the machine must be carried out by professional maintenance personnel of the professional York Company Maintenance Service Center or designated special company personnel.
3. Only use the various spare parts provided by York Company. Incorrect components may cause leaks, electric shock, fire, or air conditioning to not function properly.
4. All machine operation and maintenance items specified in this manual must be carried out in strict accordance with the specified time and frequency.
5. Air conditioning should be installed in a solid place sufficient to carry its weight, load-bearing surface should be reliable, horizontal, easy to install. Please take into account the impact of strong winds, typhoons and earthquakes, reinforcement installation. Improper installation, will cause air conditioning to fall, resulting in accidents.
6. Be sure to use a separate circuit to power. All electrical work must be carried out in accordance with local laws and regulations, with reference to this installation instruction, and with a professionally qualified electrician. Insufficient capacity or improper electrical work can cause electric shock or fire.
7. Leak breakers must be installed. There is a risk of electric shock or fire without installing a leakage circuit breaker.
8. The machine must be grounded. Ground wires cannot be connected to gas pipes, water pipes, lightning rods, or telephone lines. Poor grounding can cause electric shock, fire, or machine failure.
9. The use of oxygen or any flammable gas for airtight testing is strictly prohibited, May cause and serious accidents and personal injury.
10. During installation, in the event of a refrigerant leak, open the doors and windows immediately to ventilate. The refrigerant itself is safe, but an open fire can produce toxic gases and can cause suffocation.
11. After installation, it is necessary to check for refrigerant leaks. If there is a refrigerant leak in the room, encountering fire sources, such as heaters, etc. will produce toxic gases, when reached a certain concentration, may cause

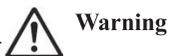
personnel asphyxiation.

12. If there is a refrigerant leak, do not touch the refrigerant leaking refrigerant directly from the refrigerant fitting. Failure to do so will cause frostbite.
13. After power off completely, Can contact with electrical components.
14. Do not touch the switching part with a wet hand, which may cause electric shock.
15. Don't let the children climbed up the outdoor units, or beside the machine to play, to prevent Children hurt.



16. Please pay special attention to the handling of the product. Do not pull the lifting of the pack strap to prevent the packing belt from breaking, damaging the unit and personal injury.
17. The storage environment temperature should not exceed 48°C, avoid direct sunlight.
18. The air-cooled coil heat exchanger on the unit should be covered. Especially in the construction area can not be open storage, in order to prevent the fins dirty blocking. If the unit is ready to be stored for a period of time before installation, some protective measures should be taken to prevent damage, rust or wear.
19. Please place the packaging material properly. Packaging materials such as nails and wood may cause stab wounds or other injuries.
20. The unit may not be installed in a working environment with pollution level 4 (environmental conditions specified by GB14048.1-2006).
21. Installed indoor machines, outdoor machines, enamel water tanks, power lines and communication lines, should be kept with television, radio and other equipment at least one meter or more, in order to avoid interference or noise.
22. The unit may not be installed in some places where the machine is not suitable:
  - a) Where mineral oil fumes, sprays or steam are dispersed, causing deterioration and damage to machine plastic parts
  - b) Places with corrosive gases, salt spray and severe dust (such as coal ash, metal dust, etc.), such as seaside with high salt content and hot springs with sulfurized gas. Corrosive gases can corrode copper pipes, solder joints and sheet metal parts and cause refrigerant leakage.
  - c) The unit should be kept away from electromagnetic radiation sources and high-frequency electromagnetic interference facilities (such as electric welders, inverters, radio transmitting equipment, etc.). Because the electromagnetic wave will affect the control system, the air conditioner will not operate normally.
  - d) Where there is a risk of flammable gas leakage, where there is suspended carbon fiber or flammable dust in the air, or where there is volatile gas, such as thinner or benzene. Using air conditioners in these locations may cause a fire.
  - e) Small animals may have entered the unit. If electrical components are touched, it may cause unit failure or fire.
23. When refrigerant supplementation is required, be sure to use a qualified refrigerant R410A, YORK refrigerants are recommended. Non-conforming refrigerants can cause damage to the machine.

## **WARNING AND ATTENTION OF WATER STORAGE TANK**



1. The power supply must have a reliable ground, the power outlet must be well grounded, the power supply of the ground wire to be buried in the earth, can not be connected with the water pipe and other utilities: power ground and zero wire, should be strictly separated, can not be connected with the two wires together. Do not use this product without reliable grounding! Make sure that there is a clear leak in the location of the water tank installed, and that the product installation area should be able to ensure that in the event of a leak of the water tank or connector of the product does not cause damage to the adjacent area items or the lower layer of the building.

2. The draft tube connected to the PT safety valve should be firmly connected, Do not clog. The flow guide pipe should be installed in a continuous downward way in a frost-free environment, make sure that the other end of the guide tube connecting the safety valve is always in the ground leak, while the hose does not fold, to ensure that the leak is clear, to prevent the pressure in the water heater when the safety valve can not be discharged because of the danger! It is normal to drip water at the drain pipe connecting the relief valve during normal use.
3. Before starting electric heating, under the premise of ensuring reliable grounding of the power outlet, it is necessary to check that the leakage protection plug is normal, and test it and use it correctly by reference to the contents of the leak protection plug instructions.
4. During thunderstorms, be sure to disconnect the electric heating power supply and strictly prohibit the use of water heaters.
5. Socket requirements: This product must use a separate dedicated socket (multi-function socket is forbidden) and reliable grounding. The socket should be a qualified product that passes the China Compulsory Certification Mark. Can not use any socket converter, cable extension cable has been adapted to the plug size of this product, and do not use other plugs to adapt to the socket.
6. Power outlets should be installed in the dry place where water spray can not, do not wet hand plug power plug, otherwise there will be electric shock and other accidents. Do not use damaged power cords and electrical appliances with very loose plugs. Failure to do so will cause electrical shock, short circuit, fire and other accidents, should confirm that the power plug can be tightly connected to the power outlet. The quality of the socket should be in line with national standards, and to wipe the metal sheet on the power plug in time to prevent the metal sheet from being contaminated and causing fire and other accidents.
7. If the power cord is damaged, it must be replaced with a special cord or a special component purchased from its manufacturer or service department.
8. Installation requirements: Do not place flammable and explosive items such as gasoline near the water tank, as this may cause a fire.
9. The hot water side is equipped with a water flow switch, which is prohibited to shield the hot water flow switch during commissioning in the way that the water pump is forced to run.
10. This product is based on the expansion of domestic hot water based on air-cooled water chiller for air conditioners. In principle, it is not allowed to use only air-cooled heat pump water heaters. If it is used only for this purpose, you need to contact the YORK factory.

**Caution**

11. Before starting the system for the first time, check that all valves are in a normal state, Do not turn on the power before the water tank is filled with water to avoid damage to the machine. Before starting the system, check that all valves are in a normal state and filled with water.
12. Once the system operation should ensure a normal water supply, normal use, the hot water storage tank cold water import valve should be in a normal open state, strictly prohibited to close. The product is not in good use when water is stopped. Summer long-term water suspension system easy to overheat, again use please pay attention to high temperature water, be careful not to be burned.
13. Before bathing, the water temperature should be adjusted to an appropriate temperature to determine whether the water temperature is suitable for bathing, in order to prevent burns. Hot water above 50 degrees C can cause burns to the human body! First open the valve to put cold water, hand test a water temperature, if the temperature is too high or too low, then adjust the hot and cold water valve or thermostatic valve, to avoid water overheating or too cold and damage to the body.
14. The check valve of the water tank configuration of the system must be installed on the side of the water tank inlet pipe and between the cold water inlet and the water supply line. The PT relief valve configured in the water tank of this system should be installed at the PT safety valve port corresponding to the water tank. In order to ensure

the normal use of the product, the water supply pressure of the water supply line should be controlled between 0.1MPa-0.4MPa. The pressure is too low to install a booster pump, water supply pressure such as greater than 0.40MPa, should be installed pressure relief valve or pressure limit valve, to maintain the water supply pressure within 0.30Mpa.

15. Hot and cold water pipes in water tanks should be filled with high-quality water pipes and fittings, and hot water pipes should be temperature-resistant at temperatures above 95 °C
16. Persons with physical disabilities, perception or neurological defects or lack of experience and common sense (including children) are required to use this product in the escort of a normal adult to avoid accidents such as burns or electric shock.
17. Do not recommend drinking the water in the tank.
18. In order to ensure the normal service life of the water heater, the water tank should be regularly overhauled by professionals and cleaned regularly. Replace the tank anode rod.
19. Magnesium rods should be checked and replaced regularly, magnesium rods are consumed items, should be based on local water quality contact us for purchase and replacement. It is recommended to check that the replacement cycle is 2 years to replace the magnesium rod once (1 year replacement with softened water area).
20. When emptying the tank, it can be drained through the drain: cut off the power – turn off the cold water inlet valve – turn on any hot water tap – open the drain valve.
21. Specific steps for cleaning the water tank: Turn off the power supply - open the cold water inlet valve to maximize the tap water flow - open the drain valve and flush the water tank until the water from the tank is clean. Note: The discharged water may have a high water temperature, which may cause burns. Please be careful.
22. Avoid water directly onto the heat storage tank as much as possible, do not wash water onto the controller and plug, otherwise it will cause a short circuit, affect the operation of the system, but also to your personal safety threat.
23. Do not wash water onto the insulation line, as this will reduce the performance and service life of the insulation tube.
24. In the process of use, the safety valve to regularly move, once a month to lift the safety valve on the small handle, to confirm that the safety valve is not blocked. Method: trigger the wrench on the safety valve, if there is water flow, the safety valve works normally, if no water flow, please call the service hotline.
25. The leakage protection plug should be checked once a month to protect the plug is sensitive (method: press the test button, if the button bounces to prove that the switch is normal and then press the reset key, can continue to use), if the leakage protection plug failure, then call the service hotline.
26. Product design life of more than 10 years, if beyond the design life or long-term use of the pipeline aging, thermal performance is seriously reduced can not meet the water demand, should contact professionals for demolition.

## SECTION 1- PRODUCT DESCRIPTION

### INTRODUCTION

As the leader of China's household central air conditioning, York has meticulously introduced the household central air conditioning solution, which is suitable for different household users and small business users. It helps you solve the indoor air quality problem and care for the healthy life of your family while perfecting your fashionable home decoration. As a selected product of York, YVAG –HR environmentally-friendly and efficient series household hot and chiller belongs to the small central air conditioning system. The indoor units can be installed in various forms such as concealed fan coil units, exposed fan coil units, ceiling embedded units and floor heating, etc., plus the high-end interior decoration, you can enjoy the luxurious atmosphere comparable to the star hotels.

### BASIC UNIT NOMENCLATURE

#### 1. The Unit

Naming	Y	V	A	G	0	1	2	H	S	E	2	0
Code Position	1	2	3	4	5	6	7	8	9	10	11	12
1st code:	Y–YORK											
2nd code:	V–Variable Frequency											
3rd code:	A – Air-cooled											
4th code:	G、F– Design Series											
5th, 6th, 7th code:	Nominal Capacity, (Unit: kW)											
8th code:	Specific Function, S-Cool R- Integral & Heat Pump H- Heat Recovery											
9th code:	Single/Modular, S- Single											
10th code:	Refrigerant, E-R410a											
11th,12th code:	Voltage, 20- 220V ~50Hz , 50- 380V 3N~50Hz 30- 230V ~50Hz , 53- 400V 3N~50Hz											

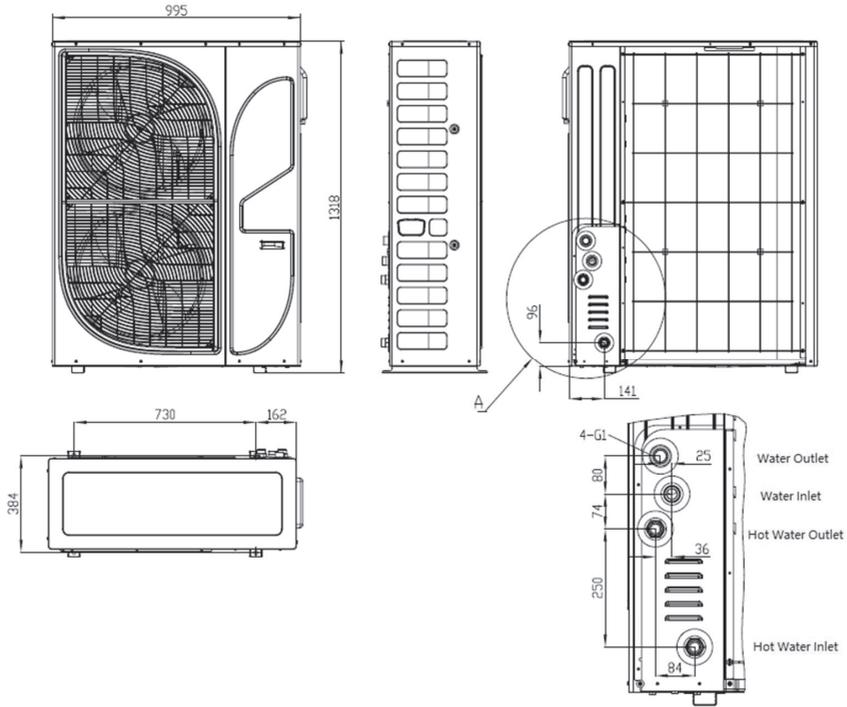
#### 2.Hot Water Tank

Naming	Y	H	T	2	0	0	W	5
Code Position	1	2	3	4	5	6	7	8
1st code:	Y–YORK							
2nd ,3rd code::	HT– Heat recovery tank							
4th, 5th, 6th code:	Water tank Volume , L							
7th code:	W– PUMP							
8th code:	Built-in expansion tank capacity , 5 - 5L							

**THE UNIT DIMENSION**

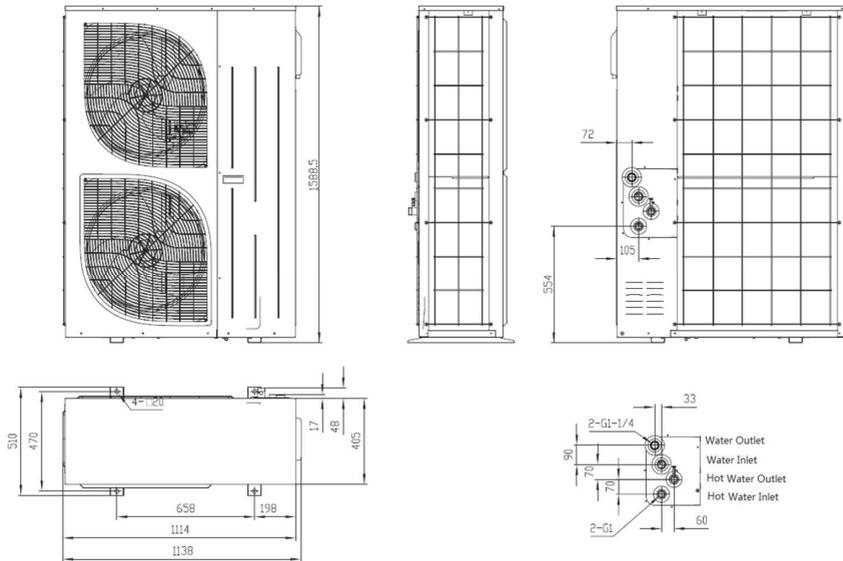
**YVAG012/014/016HSE**

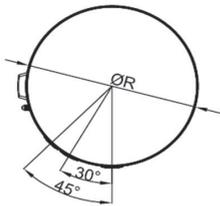
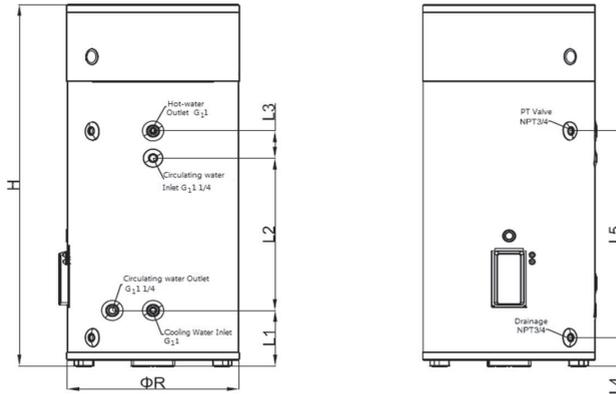
Unit: mm



**YVAG020/022/025/028/033HSE**

Unit: mm





Model	H (mm)	R (mm)	L1 (mm)	L2 (mm)	L3 (mm)	L4 (mm)	L5 (mm)
YHT100W5-0A	1470	468	193	670	120	105	878
YHT150W5-0A	1565	540	193	715	120	105	923
YHT200W5-0A	1895	540	193	1045	120	105	1253
YHT300W5-0A	1610	710	245	673	120	125	913
YHT400W5-0A	2195	710	245	1264	120	125	1504

## OPERATING RANGE

### Voltage Range

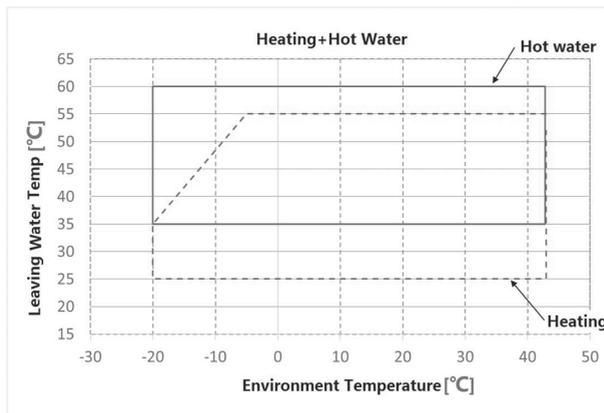
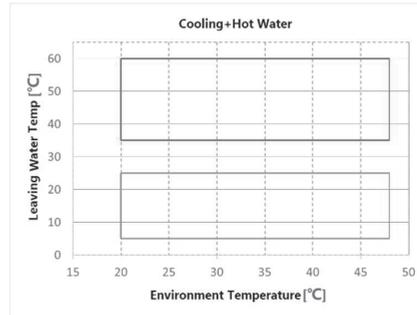
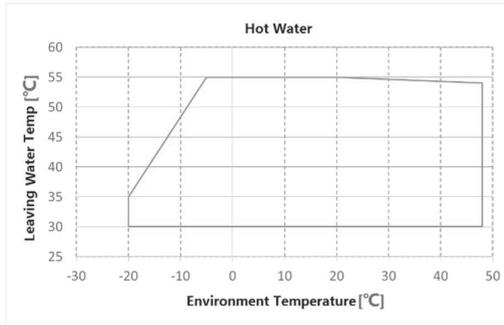
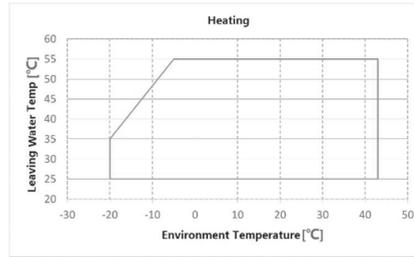
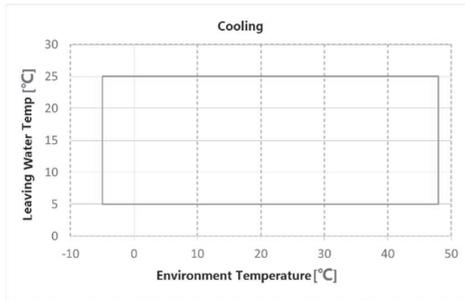
The maximum fluctuation range of YVAG012-018HSE20 supply voltage is  $220V \pm 10\%$

The maximum fluctuation range of YVAG020-033HSE50 supply voltage is  $380V \pm 10\%$  &  $400V \pm 10\%$ . Three-phase electric phase unbalance rate should be less than 2%.

### Temperature range

Project	012~033
Relative humidity	<90%, No condensation
Operating environment of wire controller	-15°C ~ 46°C
Standard ambient at cooling mode	-5°C ~ 48°C
Ambient temp. at heating mode	-20°C ~ 43°C
Ambient temp. at heating recovery mode	-20°C ~ 48°C
Standard leaving chilled water temp	5°C ~ 25°C
Standard leaving hot water temp	30°C ~ 52°C
Heated water temperature range (hot-water storage tank)	30°C ~ 60°C

## Operating range



### Please note that



The return water temperature control is default by the unit controller, and return water temperature control is recommended.

The above data are obtained in the laboratory, the practical use there will be deviation affected by the installation position and so on.

Refrigeration and hot water mode hot water temperature is higher than  $52^{\circ}\text{C}$  when the unit will be full heat recovery to part of the heat recovery, at this time hot water heat will drop, the specific amount of decline and environmental temperature, water temperature, air conditioning load;

The hot water temperature in heat-making and hot-water mode is higher than the upper dotted line in the figure when the unit will heat and hot water run at the same time. at this time hot water heat will drop, the specific amount of decline and environmental temperature, water temperature, air conditioning load;

For applications with temperature below  $-20^{\circ}\text{C}$ , please consult YORK company.

**Applicable Medium**

The standard design applicable medium of the unit is purified water. Please consult YORK Company for special medium such as glycol antifreeze fluid.

**Altitude**

No more than 2000m

**Wind side external static pressure**

No more than 30Pa

## SECTION 2 INSTALLATION REQUIREMENTS

### PRE-INSTALLATION INSPECTION ITEMS

1. Whether the nameplate content of the unit is the same as that in the order;
2. Check whether the documents attached with the unit are complete;
3. Check whether the accessories of the unit (are consistent with the items listed in the packing list);
4. Check whether there is damage of unit caused by transportation. If there is obvious damage, it shall be indicated on the freight order of the transportation company, and the transportation agent shall be requested to check in writing immediately.

### MOVING THE UNIT

#### Lifting Precautions:

1. Always observe applicable regulations and safety measures during lifting;
2. Prepare and follow the written lifting plan;
3. Lifting must be carried out under the guidance of professionally trained professional hoisting personnel;
4. The props must be long enough to keep the sling or chain from touching the unit, which can cause damage to the unit;
5. Use all specified lifting points for lifting according to the instructions in the unit manual;
6. In view of the possible changes in the structure of the unit, the center of gravity of the unit is determined by test lifting;
7. Use lifting techniques to keep the unit stable and level;
8. It is strictly forbidden to stand under the unit during lifting, please keep away from the position directly below the unit.
9. In order to facilitate moving, the buyer shall use a suitable elevator or use a forklift crane or crane. When lifting with a crane, canvas straps shall be used, to cross the unit base and tighten. If the packing box has been removed, please use suitable spacers to protect the surface and side panels to move the machine, as shown in the following Figure. During the handling process, the machine shall be kept horizontally to avoid damaging the unit due to reckless operation.
10. During the lifting process, special care shall be taken to ensure the smooth lifting of the outdoor unit, especially the problems such as uneven weight distribution of the unit and biased center of gravity to the compressor side. Please try lifting once before lifting to observe whether the strap is fastened tightly and whether the unit is in danger of tipping over. During the lifting process, the unit shall be slowly raised at a constant speed to prevent tipping over and pay attention to the safety of surrounding personnel.

**BE CAUTIOUS!!!**

#### Product Weight

The Unit

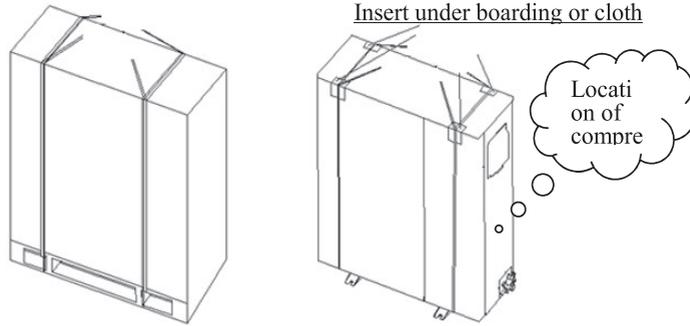
Unit/Parameters		012	014	016	020	022	025	028	033
Gross weight	kg	156	156	169	240	240	240	260	260
Operating weight	kg	144	144	157	235	235	235	255	255

Hot Water Tank

Unit/Parameters		YTH100W5	YTH150W5	YTH200W5	YTH300W5	YTH500W5
Gross weight	kg	64	100	111	132	160
Operating weight	kg	150	234	293	413	636

Schematic Diagram of Hoisting with Packaging

Schematic Diagram of Hoisting without Packaging



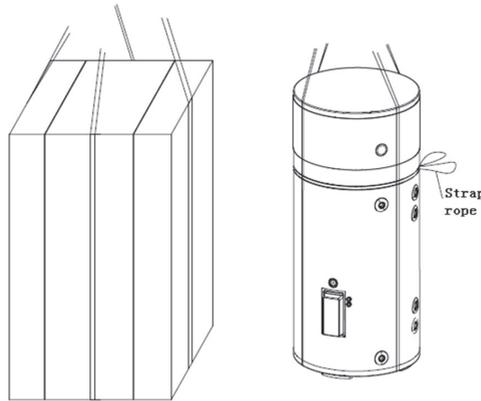
Location of compressor

Without a wooden cork base

Center of gravity of the unit inclined to one side, please hoisting according to the above picture and the requirements of installation manual. Please refer to the parameter list for the weight of the unit.

Schematic Diagram of Hoisting with Packaging

Schematic Diagram of Hoisting without Packaging



Water tank lifting diagram

Center of gravity of the unit inclined to one side, please hoisting according to the above picture and the requirements of installation manual. Please refer to the parameter list for the weight of the unit.

**INSTALLATION LOCATION SELECTION**

- Should not be installed in flammable and explosive articles, corrosive gases, salt spray and heavy dust (e.g. coal ash, metal dust, etc.) in polluting air;
- The unit shall be installed at an altitude of less than 2000 meters, beyond which it may cause damage to the unit or casualties, if unavoidable, please contact the York Special Maintenance Centre;
- The foundation should be able to meet the weight of the unit and other requirements;

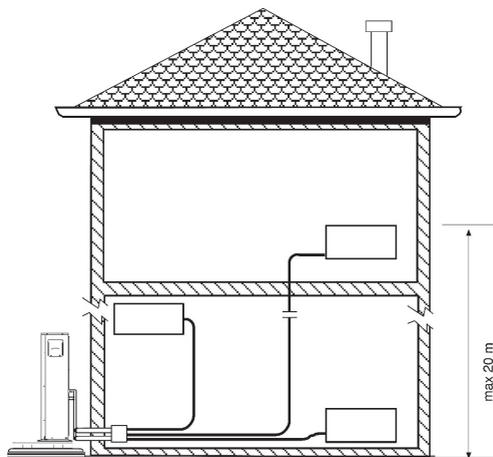
## SELECTION OF INSTALLATION POSITION

1. The outdoor unit can be installed on the balcony, roof, ground or any other place convenient to install and capable of bearing loads reliably.
2. For the ground installation, the steel foundation of the unit shall be placed on smooth and flat concrete foundation. DO NOT connect the unit foundation with the building foundation for fear that noise and vibration would be transmitted;
3. It shall not be installed near other heat sources that may affect the normal operation of the outdoor unit;
4. It shall not be installed in the positions near corrosive or flammable gases;
5. Efforts should be made to assure that the unit is not located next to occupied spaces or noise sensitive areas where unit noise level would be a problem.
6. Please make the unit face the place that is sensitive to noise as far as possible to reduce the influence of operating noise of the unit;
7. If the units are located at a place where unauthorized personnel could reach, isolation security measures shall be taken, such as setting protective guard, to avoid human sabotage and prevent the control cabinet from being opened and the operating electrical component from being exposed;
8. The highest point of the air conditioning system shall not be 20m over the unit (for 20m higher, please consult YORK Company);
9. Place the front of the unit to the noise sensitive place as possible, so as to reduce the impact of the unit operation sound on the external environment.
10. If the heat exchanger part is without block, protective baffle plate can be added to reduce the influence of operating noise of the unit.
11. These units are designed for outdoor installations on ground level, rooftop, balcony, and any other place that is suitable for installation with reliable load bearing. Location should be selected for minimum sun exposure and away from boiler flues and other sources of airborne corrosive or flammable gas that could attack the ambient coils and steel parts of the unit. The units must be installed with sufficient clearances for air entrance to the condenser coil to ensure adequate supply of fresh air, for air discharge away from the condenser, and for servicing access.
12. The unit cannot be installed in a place where the snow is easy to accumulate and the debris is easy to drop;

## INSTALLATION OF HEAT STORAGE TANKS

1. The water tank must be installed in a dry and undisturbed place, never in a place where freezing will occur, and if placed in the open air must take into account rain-proof ingress, Such as sun sheds and the like. The appliance should be as close as possible to the hot water point with the highest frequency of use. If the expansion tank is installed at the top of the water tank, the water tank must be indoors to prevent the expansion tank from freezing in winter. It is necessary to consider the sufficient weight to support the running weight of the water tank after filling with water;
2. The position of the water tank must have a drainage channel or drainage tunnel, the ground should be waterproof treatment;
3. Avoid installation in the vicinity of noise sensitive places such as bedrooms, classrooms, wards, and administrative offices;
4. The hot water system installation line of the water tank can not be too long, requires the total length of not more than 10m (including the length of the incoming pipe 5m each), too long installation lines will lead to a decrease in the flow of hot water, increase the temperature difference in and out of water, water tank temperature decreased;
5. The heat storage tank should ensure that the installation position is no greater than 5m from the height of the outdoor machine
6. The water tank can only be installed vertically;

7. When the water tank is regularly replaced, the water rod needs to be taken out from the top. Therefore, the height of the floor should be considered in order to replace and maintain the magnesium rod. The floor height requirements for each type of water tank are shown in the following table;



**⚠ Note:**

For places with special installation requirements, please consult to the building contractor or the architect and designer or other professionals.

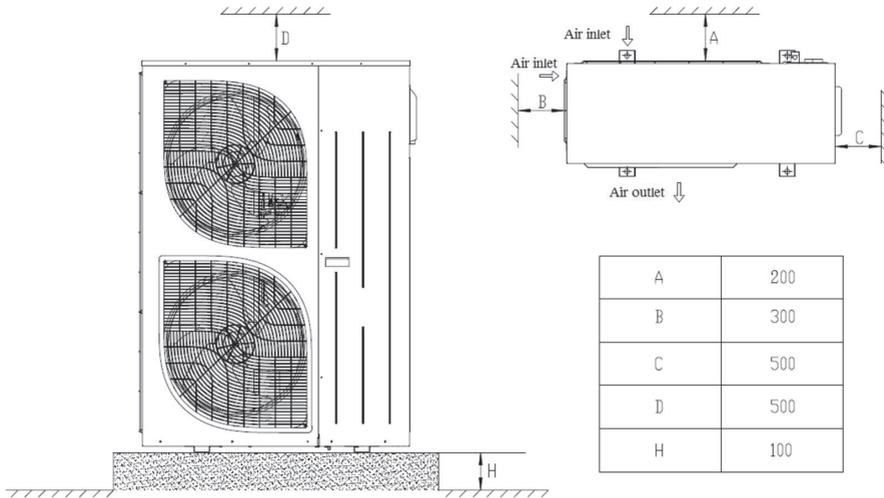
Water tank model	YHT100	YHT150	YHT200	YHT300	YHT500
Magnesium stick length /mm	640	800	900	900	1050
Suggested floor height /m	≥2.5	≥2.5	≥2.7	≥2.7	≥3.0

**INSTALLATION CLEARANCES**

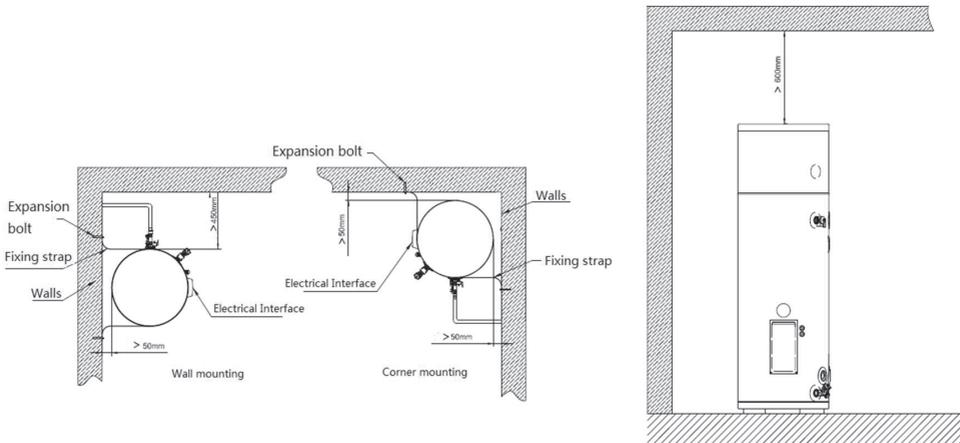
1. Placement on a level surface of free of obstructions (including snow, for winter operation) or air circulation ensures rated performance, reliable operation, and ease of maintenance. Site restrictions may compromise minimum clearances indicated above, resulting in unpredictable airflow patterns and possible diminished performance. YORK’s unit control will optimize operation without nuisance high-pressure safety cutouts; however, the system designer must consider potential performance degradation.
2. The influence of downward flow caused by tall buildings around the unit toward the exhaust air of the unit shall also be taken into consideration in installation.
3. If the unit is installed at a place with violent airflow, such as exposed roof, measures including parapet or blinds shall be taken to prevent turbulent flow from interfering the air flow into the unit. If the unit needs to set parapet, the height shall not be taller than the unit and the clearance between the unit and the parapet or the blinds shall also satisfy the minimum clearance requirement for unit installation
4. When the unit is placed on a snow covered surface, the bottom face of the unit should be at least 100mm higher than the surface of the snow cover to guarantee the air successfully flow through the coil exchanger;
5. After the unit is installed in the machine position, the maintenance personnel must be reserved (recommended reserve spacing ≥ 500mm);
6. No obstructions allowed in front of the airflow outlet except grilling of blinds. The effective aperture opening ratio of the grating shall be over 80% and the angle of inclination of the grating blades shall be over 20°, and the blade

pitch shall be over 10 cm, When there are walls or other obstacles on the other three sides, the installation spacing of the unit must meet the requirements of the following figure;

- When the water tank is installed on the wall side or the corner of the wall, it is necessary to reserve a certain space with the wall for easy installation and maintenance. Remove the top end cover, electrical maintenance box, PT safety valve should be oriented in the direction of easy maintenance;



**YVAG-HSE Installation space diagram**



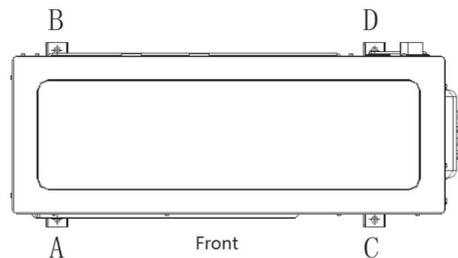
**YHT100~500W5 Installation space diagram**

**INSTALLATION FOUNDATION**

- The unit shall be placed on a horizontal plane foundation, bottom floor or roof that can withstand the operation weight of the whole set of equipment and the weight of maintenance personnel. Please refer to the "Unit Parameters Table" for the weight of unit;
- If the position of the unit is too high for overhauling by the maintenance personnel, the proper scaffolding can be erected around the unit. The scaffolding must be able to withstand the weight of maintenance personnel and their equipment;
- When installing on the ground, the steel base of the unit shall be placed on a flat concrete foundation.

Attention shall be paid not to connect the unit foundation with the building foundation so as not to transmit noise and vibration.

4. When the unit is installed on the roof, the roof must have sufficient strength to support the weight of the unit and maintenance personnel. The unit can be supported on a concrete foundation or channel steel frame similar to that used for ground installation.
5. The unit base is provided with mounting holes that can be used to fasten the unit to the foundation;
6. It is recommended to place damped spring vibration isolator (especially for units with rack mounting or installed on the roof floor) between the base and the foundation of the outdoor unit. The isolator mounting shall be selected and installed according to design requirements to satisfy the demand of vibration isolation and to avoid phenomena including solid-borne sound transmission and resonance; generally the construction shall be undertaken by professionals with the models provided by the design engineer; the table below is the recommended model selection of absorber, a proximal absorber can be selected near the given optimal load and vertical stiffness:



#### ABSORBER SELECT

Unit	Total No. of isolators	Optimal Load of A/B Side (kg)	Optimal Load of C/D Side (kg)
YVAG012	4	25	75
YVAG014	4	25	75
YVAG016	4	25	75
YVAG020	4	40	90
YVAG022	4	40	90
YVAG025	4	40	90
YVAG028	4	45	90
YVAG033	4	45	90

7. In order to ensure that the outdoor unit is laid flat on the foundation, it must be confirmed that the plane where the outdoor unit is placed is flat before placing the outdoor unit. In addition, after the installation of the outdoor unit, check whether the outdoor unit is horizontal or not, and the inclination angle shall be less than 10°. For those installed with the shock absorber, the levelness shall be checked after the shock absorber is installed.
8. There shall be drainage channels around the unit, so that the water generated by rainwater, heating defrosting and heating condensation can be discharged smoothly. If there is no drainage channel, add a water tray at the bottom of the unit and lead to the appropriate place through pipeline.
9. If the water tank is installed in open flat, additional retaining fences are required. Secure the water tank with a fixed strap. If the water storage tank side or sides of the wall, the water tank should be fixed to the wall with a fixed strap strap;
10. It is necessary to ensure that there is a drainage pipe around the water tank so that the water tank discharges water smoothly. If there is no drainage pipe, the water tank drain valve should be connected to the appropriate drainage position;

11. The water tank installation location needs to be reserved for access space, pay attention to the reserved pipe drain position.

## INSTALLATION OF WATER SYSTEM

### Chilled liquid piping specification

General - When the unit(s) has been located in its final position, the unit water piping may be connected. Normal installation precautions should be observed in order to receive maximum operating efficiencies. All chilled water evaporator piping must comply with local plumbing codes and ordinances in all aspects.

Since elbows, tees and valves decrease pump capacity, all piping should be kept as straight and as simple as possible. All piping must be supported independent of the unit.

The following considerations of piping specification should be observed:

1. The air conditioning inlet and outlet pipes of the unit are based on the interface size specifications of each model. The diameter of the inlet and outlet pipes should not be smaller than the joint specifications. It is recommended to use pipes of DN32 and above; In order to minimize the water resistance on the hot water side and increase the maximum water tank temperature in actual use, the diameter of the hot water inlet and outlet pipes between the unit and the water tank should not be smaller than the water tank joint specifications (DN32). It is recommended to use pipes of DN32 and above;
2. Piping to the inlet and outlet connections of the unit should include high-pressure rubber hose or piping loops to ensure against transmission of water pump vibration. The necessary components must be obtained in the field.
3. PP-R material is recommended for the water supply and return piping of the unit for the household water system. It will be beneficial, as the possibility of the filth blockage and the water resistance will decrease.
4. Galvanized steel pipe (not recommended) shall be designed as screwed connection. When the pipe diameter is larger than DN100, clamp, flange or welded joint can be applied for connection.
5. For welded connection (not recommended) applied for piping, antiseptic treatment (rust cleaning before painting) shall be conducted to the surface of welded joint and heat-affected area.
6. Galvanized steel piping, PP-R piping and the corresponding screwed joints are indicated in piping specification of Thread specification, and just for reference only.

Piping specification	Thread specification							
	G3/4	G1	G1-1/4	G1-1/2	G2	G2-1/2	G3	G4
Specification of galvanized steel pipes	DN20	DN25	DN32	DN40	DN50	DN65	DN80	DN100
Outer diameters of galvanized steel pipes (mm)	27	34	42	48	60	76	89	114
Specification of PP-R pipes	D25	D32	D40	D50	D63	D75	D90	D110
Outer diameters of PP-R pipes (mm)	25	32	40	50	63	75	90	110

#### Cautious:

- a) Enterprises engaged in pipe welding shall have the assessment of the welding process of the corresponding projects, and the welder shall hold the welder's certificate of conformity for the corresponding category of welding;
- b) The installation of pipelines shall be carried out in accordance with the provisions of the current national standard GB 50242, The Code for The Acceptance of the Quality of Construction of Construction Water Supply, Drainage and Heating Works.

## WATER SYSTEM INSTALLATION

### Chilled liquid piping installation

Water pipeline connection shall observe relevant installation regulations. Piping should be kept free of foreign matter.

The piping to and from the chiller must be designed to suit the individual installation. It is important that the following considerations are observed:

1. The operating flow rate of the unit shall not exceed 50-120% of rated flow for each unit type, too large or too small water flow rate would affect the normal use of the unit.
2. The water flow direction of the unit shall be connected according to the inlet and outlet pipe marks on the unit, otherwise the performance of the unit might be affected.
3. The pipeline must have independent support and should not be placed on the unit.
4. Hand stop valves, thermometers and pressure gauges should be installed in both inlet and outlet line for adjusting water flow rate and facilitating servicing.
5. The external water pump and its controller cabinet need to be installed on site; the main engine provides 220V~ control signal to realize the linkage of the unit and the water pump. A stand-by pump shall be installed on the site in case that the pump in common use would break down and affect the unit operation;
6. The water filter included the unit shall be installed on the inlet pipe of each unit to prevent the cooler from large particles entering, which could cause damage to the evaporator.
7. A water filter of no less than 60 mesh per inch shall be installed on the inlet pipe of the external water pump to guarantee reliable operation of the water pump.
8. At least one vent valve should be installed at the highest points in the chilled water pipeline to allow any trapped air to be exhausted. It can avoid generating cavitation noise and damaging the water pump.
9. Auto-supply valve shall be installed for closed type of water system (without open expansion tank) in case that the unit could not operate normally when the system is short of water. It is suggested to set the outlet water pressure of the auto-supply valve 0.3bar higher than the static pressure of the system, but the set value shall be lower than the supplementing water pressure (the source of the water supplementing), or it would not conduct normal water supplement. The auto-supply valve is usually installed at the return water line of the system; heat isolation measures shall be conducted to the water supplement pipeline and water supply valve to against freeze-up in winter.
10. The chilled water lines that are exposed to ambient should be wrapped with supplemental heater cable and insulated to protect against freeze-up during low ambient periods, and to prevent formation of condensation on lines in warm humid locations. Vent valves and drain valves do not need heat isolation for the convenience of maintenance
11. The inlet minimal pressure of water pump shall reach 20kPa to avoid cavitation noise and damage of water pump due to cavitation.
12. It is recommended that a suitably sized by-pass and valve arrangement shall be installed to allow flushing of the pipework system. The by-pass can be used during maintenance to isolate the cooler without disrupting flow to other units.
13. Drain connections should be provided at all low points to permit complete drainage of the cooler and system water piping during low ambient temperature period and the unit would not be used with a long time. Unit power should be left switched on to provide the freeze protection function unless the liquid systems have been

drained. Also unit power should be left switched off to avoid unit failure by auto starting for the freeze protection function while the liquid systems have been drained.

14. The fan coil in the water system shall be equipped with a three-way valve or a by-pass valve to make the water system circulate fluently during the period when anti-freezing water pump is operating in winter.
15. For module application, a place for thermometer sensor shall be retained on the main outlet pipe of the water system so that the leaving water temperature sensor can be installed.
16. A chilled water flow switch is already installed in the leaving water piping of the cooler. If the units are modularized, it is recommended to install another flow switch in main liquid leaving pipe.
17. When the modules are spliced, the outlet of each single machine must be fitted with a check valve;
18. The bypass line and bypass valve must be installed to facilitate the external cleaning of the water system before commissioning. Be careful not to flush or flush any foreign objects into the evaporator. After flushing, close the bypass and open the drain valve on the unit's inlet and outlet pipes. During maintenance, the heat exchanger water circuit of one unit (one or more modules) can also be cut off without affecting the normal operation of other units.
19. The lowest point of the water system needs to set up a drainage interface, when the ambient temperature is low, and the unit is not used for a long time, please drain the water inside the unit, if not water, do not cut off the power supply of the unit. The fan coil in the water system should be equipped with a tee valve or bypass to ensure that the water system circulation is smooth after the winter antifreeze pump is opened.

 **Cautious:**

1. The pump should be designed according to the constant flow system, and the bypass valve should be added to the main pipeline;
2. Dirt from the waterway network can degrade the heat exchanger heat exchange and, in severe cases, damage to heat exchangers and water pipes;
3. Quality of the chilled water should comply with the requirement in chilled water requirement in SECTION 5. No air will be permitted in water system.
4. The frozen water system should be flushed in the system, sewage qualified (visual: to discharge the water color and transparency and water intake relatively similar, no visible debris), and then cycle test run for more than 2 hours, and the water quality is normal before the refrigeration unit, air-conditioning equipment and heat storage water tank connected.
5. The unit itself does not set up a drainage valve, must be the water system of the lowest point of water supply are set up drainage valve, so that the unit in winter does not use, the system's water can be completely eliminated, otherwise in winter will cause water discharge is not clean and frozen lines. When the external line is higher than the inlet/outlet, the drainage valve must be installed before the water pipe rises to prevent the presence of water bends, resulting in dirty drainage in the unit.
6. After the installation of the unit, if the unit will not be used before the arrival of winter, the system must be drained clean, at the same time to cut off the unit power supply, so as not to automatically start the antifreeze operation of the unit and damage the pump; The water will freeze and crack the pipe and the unit board heat exchanger, water pump and other components.

## HOT WATER TANK WATERWAY TAKEOVER REQUIREMENTS

### Water Supply Pipe Connection

1. The size of the hot and cold water supervisor should be the same specifications as the water tank connector, all lines must be pressure resistant not less than 1.0MPa, and should withstand the high temperature of 99°C ;
2. Hot water temperature is high, in the hot water use point must be installed cold, hot water mixing valve, if the hot water use point is far away from the product, it is recommended that the hot water line with insulation material to keep warm, to reduce heat loss;
3. One-way valves shall be installed at the cold water inlet, and the cold and hot water pipes shall be installed with flexible connections to facilitate disassembly and maintenance. If the cold water pressure is too low and the multi-channel water supply of the product is not ideal, a booster pump can be added to the cold water inlet pipeline to increase the water supply pressure. If the cold water pressure exceeds the maximum water supply pressure too much, a pressure reducing valve must be connected to the water inlet.
4. The cut-off valve installed at the inlet pipe should normally remain open normally;
5. Make sure that the probe of the PT relief valve on the water tank is not bent, and check that the handle is flexible;
6.  PT safety valve excretion port should be connected to the drainage pipe (temperature is not less than 95 °C) to the ground leakage, requires the pipe diameter DN25, not more than 2 bends, pipe runoff should not be significantly smaller;



### WARNING:

**There must be no reason to block the drainpipe of the one-way relief valve/PT relief valve! The water from the drainage pipe should be connected to the atmosphere and that the discharge of hot water does not endanger personal safety or cause damage to property.**

### Connection of the circulation line (between the main unit and the water tank)

1. According to the system connection diagram, the circulation inlet and the circulation outlet are connected to the system. The automatic exhaust valve is installed at the top of the water tank. If there is air in the connection system, an automatic exhaust device or expansion device should be installed separately. Require connection, loop the inlet and outlet pipe, please connect the pipeline according to the system identification;
2. All pipes should be made of a temperature-resistant composite pipe, and the valve and other components in the whole system shall not be less than 1.0MPa, and should be resistant to a high temperature of 99°C ;
3. The temperature sensor needs to be applied to thermal grease to avoid detecting inaccurate temperature. The temperature line must be fixed to avoid falling off.

## WATER SYSTEM DRAINAGE METHOD

When the environmental temperature is low and the unit cannot work normally due to the circulation of main components such as compressor and water pump, please be sure to empty the water in the system before waiting for the maintenance personnel to come to the door to avoid freezing the unit.

### Air Conditioning Side Water System Drainage

The unit is shut down. After power is cut off, open the drainage valve set at the lowest point of the water system and close the drainage valve after the water in the system is drained clean.

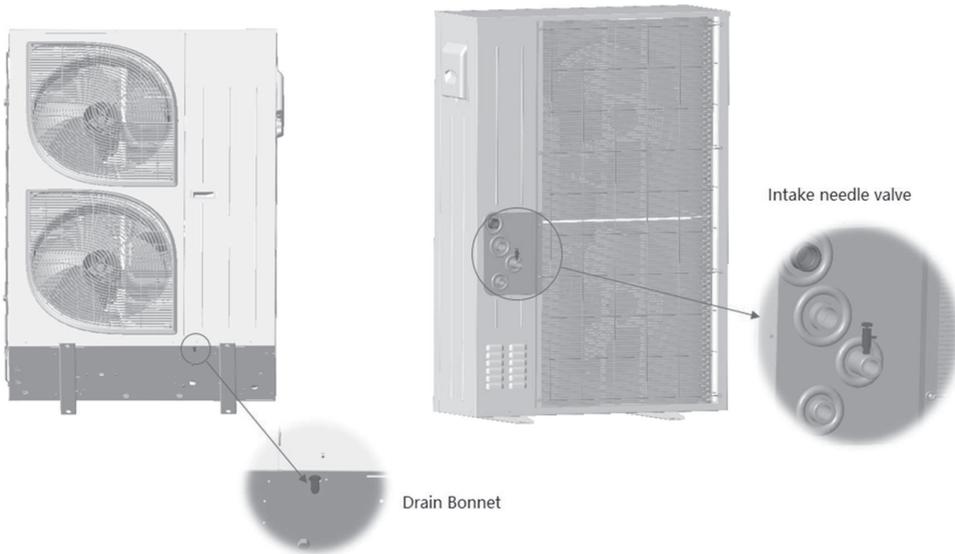
### Hot Water Side Water System Drainage

Drain on the water tank side: After the water tank is powered off, first close the stop valve on the water inlet pipe on the water tank side, and use a "-" screwdriver to open the drain valve at the bottom of the tank.

**Drain Outside The Machine**

For YVAG020-033 model, as shown in the figure below, unscrew the needle valve cap at the bottom according to the instruction label at the bottom of the front maintenance plate of the unit, and open the air inlet valve on the hot water outlet pipe at the back of the unit to ensure the bottom of the unit The drainage is smooth. After the drain valve at the bottom of the standby group no longer discharges water, screw the needle valve cap back and close the inlet valve of the water outlet pipe.

For YVAG012-016 models, open the drain valve at the lowest point of the hot water inlet pipe or directly unscrew the lower inlet pipe to drain water to ensure that the water in the hot water heat exchanger inside the unit is drained clean.



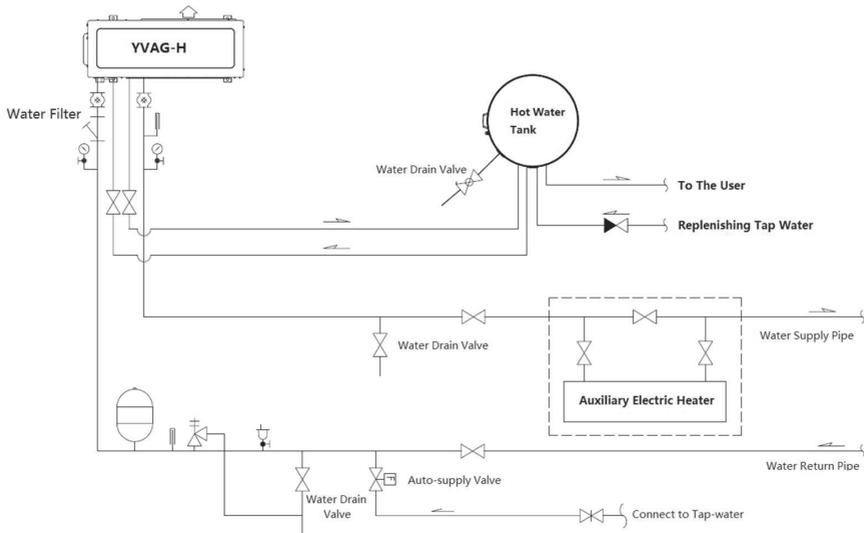
**WATER SYSTEM INSTALLATION**

**Water System Installation Diagram**

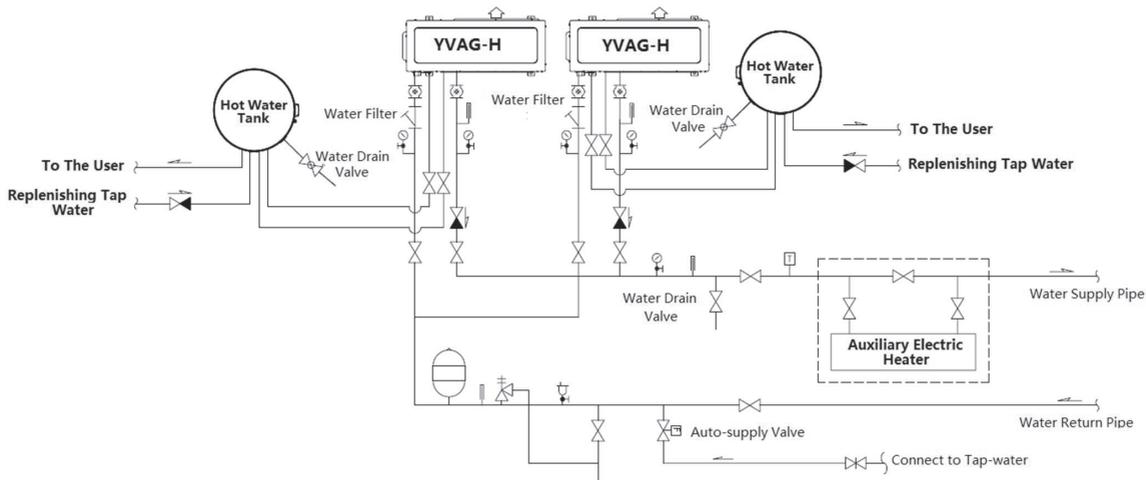
COMPONENTS SYMBOL:

Graphic Symbol	name	Graphic Symbol	name
	Stop Valve		Flow Switch
	Pressure Gauge		Temperature Sensor
	Thermometer		Vent Valve
	Water Pump		Safety Valve
	Metal flexible joint		Check Valve
	Y Type Fliter		Pressure Differential Valve
	Ball Valve		Pressure Differential controller
	Auto-supply Valve		Expansion tank

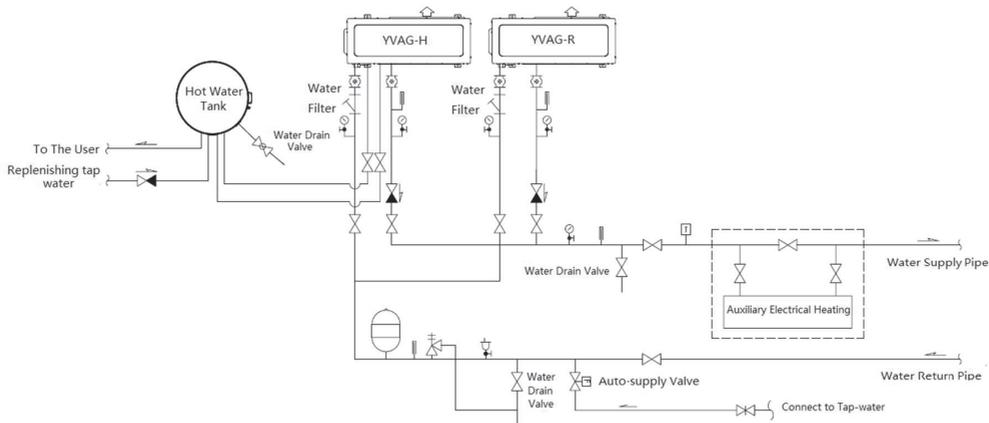
**Example Of Stand-Alone Water System Installation:**



**Example Of A Splicing Water System Installation For The Heat Recovery Unit Module:**



**Example Of A Splicing Water System Installation For The Thermal Recovery And Standard Unit Module::**

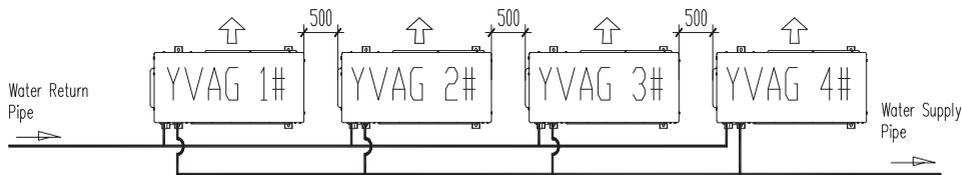


**Notes:**

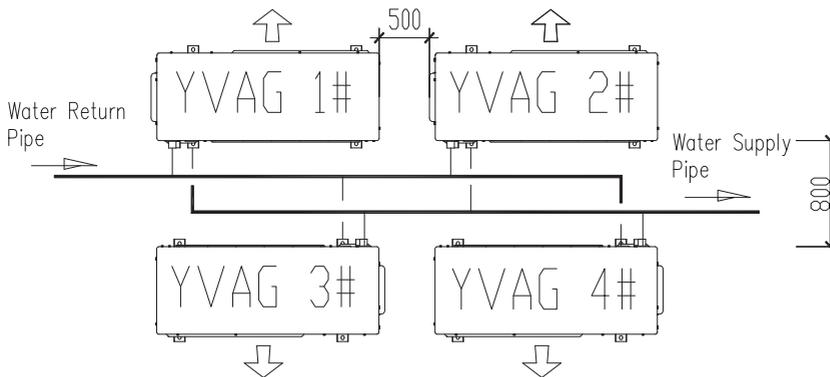
1. Parts in the dotted box are optional components, and if the site does not need installation, the pipeline here can be directly connected.
2. In modular connection, considering the balance of water pressure drop and water flow rate, the same route design should be applied. If pipelines could not be installed in the same route due to the limitation of installation space, please contact the local JCI office for confirmation.
3. In modular connection system with external water pump, the standby water pump is not necessary; but the standby water pump is recommended to be included in case that the water pump in common use might break down and affect the normal use of the unit.

## MODULAR CONNECTIONS

### Side By Side Layout


**Back**

### By Back Layout

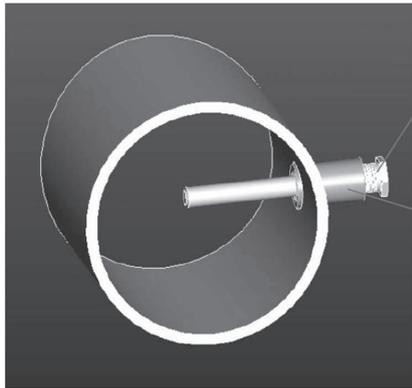


## SYSTEM LEAVING WATER TEMPERATURE SENSOR

When the unit is controlled by a modular combination and needs to be controlled by the outlet water temperature, a system outlet temperature sensor must be installed on the main water supply pipe. The system outlet temperature sensor is connected to the 1# unit. When the outlet water temperature control is not required, it is not necessary to install and connect the system outlet temperature sensor.

### Installation Methods Of Temperature Sensor:

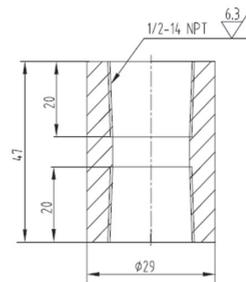
- A) Install the G1/2 internal threaded connector on the main water supply pipe
- B) Install the G1/2 blind pipe with external thread on the joint with internal thread
- C) Inject a certain heat conduction oil into the blind tube, then insert the temperature sensor, and seal tightly with the screw lock
- D) Module combination. The water outlet temperature control RT5 of the system is connected to the host machine 1. If no water outlet temperature control is needed, RT5 can be disconnected. (See electrical schematic Diagram requirements for RT5 locations)



Part 1 is the sensor mounting sleeve, the inside is 3/8-18 NPT thread, and the outside is 1/2-14 NPT thread

Part 2 is a 1/2-14 NPT threaded base, welded to the main pipe

Note: The 3/8-18 external thread lock head is screwed on the temperature sensor casing, which is not marked in the figure.



Structure drawing of G1/2 internal thread Base (Part 2)

Note:

- A) In order to prevent the inlet water freezing of the blind pipe, it is recommended to install the blind pipe in the lateral horizontal direction.
- B) For accurate temperature sensing, the temperature sensor shall be inserted into the bottom of the blind tube, and there shall be no air or water in the blind tube.
- C) Anti-rust treatment is required after the joint is installed on the water supply pipe.

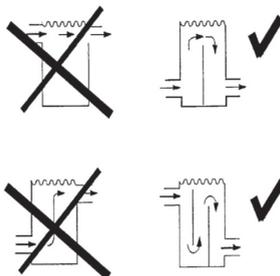
**BUFFER WATER TANK**

When water volume capacity for the water system is little, sharp drop of water temperature would affect defrosting when the unit is operating in heat mode for defrosting. To avoid this, buffer water tank should be applied or the diameter of main water pipe should be enlarged to meet the recommended range in the following table.

The referential installation methods for buffer water tank as shown below. .

Model Type	YVAG	012	014	016	020	022	025	028	033
Rated Water Flow	m3/h	1.9	2.4	2.7	3.4	3.8	4.3	4.8	5.3
Water Volume Capacity Limitation	Minimum/L	45	55	55	78	78	78	78	78
	Maximum/L	90	90	90	180	180	180	180	180
Minimum Water Pressure for Operation	kPa	600	600	600	30	30	30	30	30
Maximum Water Pressure for Operation	kPa	012	014	016	600	600	600	600	600

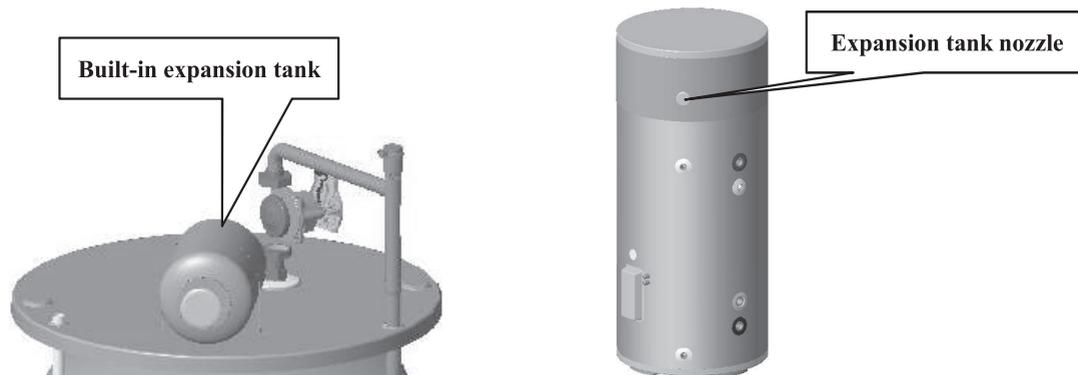
**Notes:** The data above is suitable for the condition when the highest point of water system is 20 m higher than the unit. The maximum water volume is only available to the unit with built-in expansion tank.



**EXPANSION TANK INSTALLATION**

The expansion tank built into the unit is installed on the top of the water tank. It can be removed according to the actual situation and installed on the return pipe of the unit's air conditioning water system.

If the site installation space is insufficient, it can also be directly connected from the expansion tank at the top of the water tank to the air conditioning water system of the unit on the return pipe, but in order to prevent rain and winter drainage tube freeze crack risk, should be installed in the water tank for indoor use.



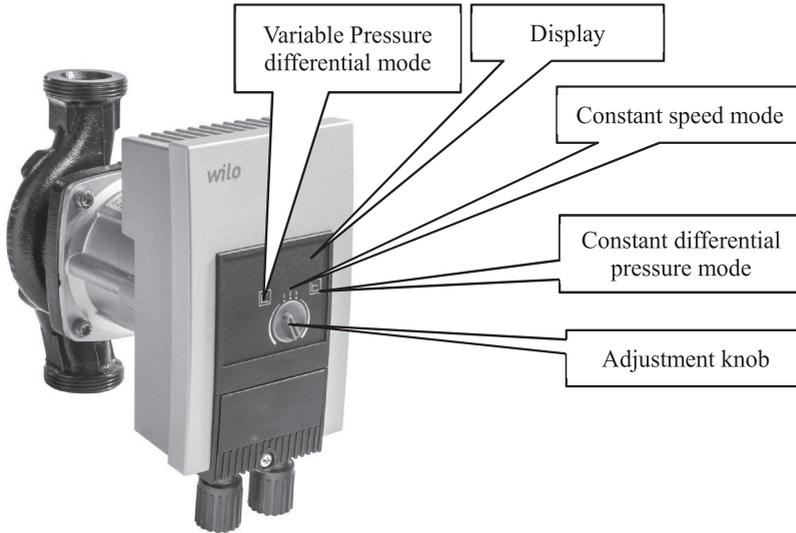
**EXPANSION TANK (POT)**

There is no expansion tank as standard components built-in the unit. When the site water system is set as a closed cycle system, Expansion Tank must be installed on the return pipe of the unit. Expansion tank should be applied when water volume capacity of water system is higher than that in the following table. Installing height of the expansion water tank should be within 50 m above the unit. The design pressure of expansion tank should be 6 bar at least.

**Inverter Pump Settings**

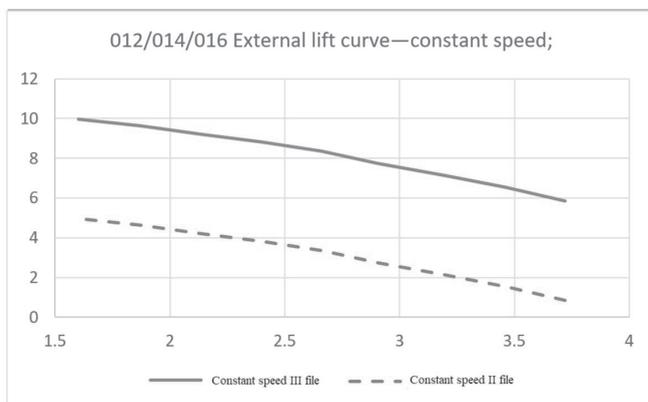
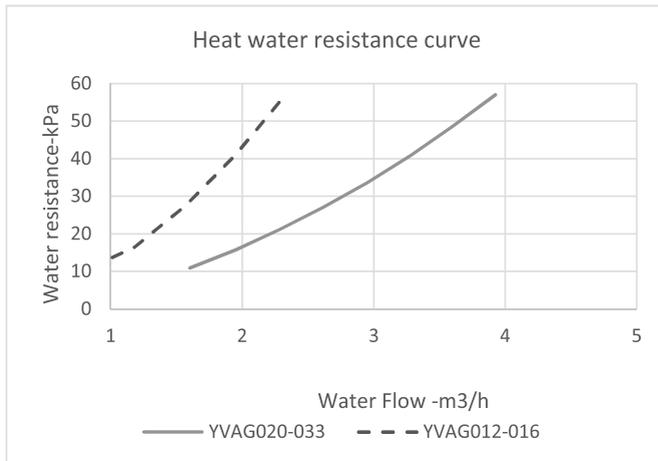
YVAG012-033HSE heat recovery unit, in order to reduce the power consumption of the customer's water pump, the external machine is equipped with a frequency conversion shielded pump, the pump built-in multiple operating curves (factory default speed III), users can set the corresponding operating curves according to the actual field water system resistance characteristics.

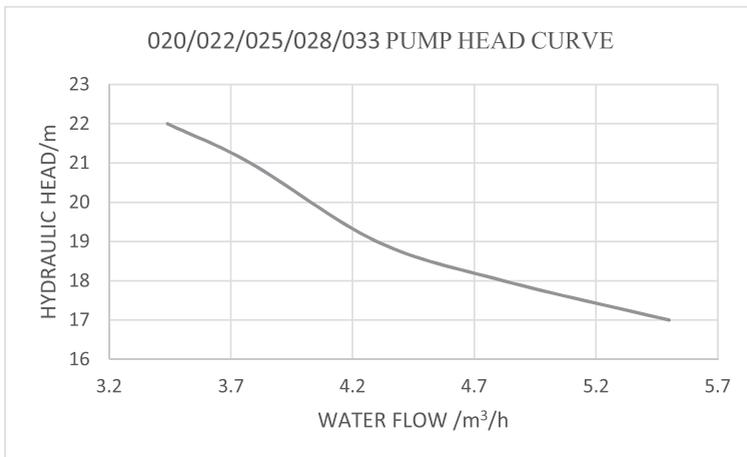
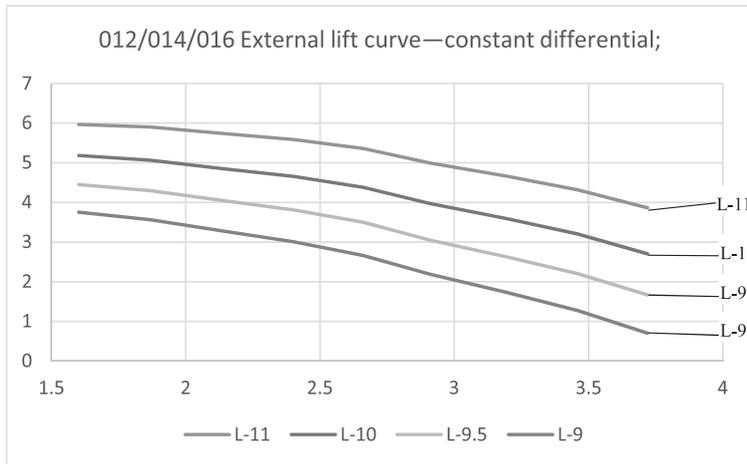
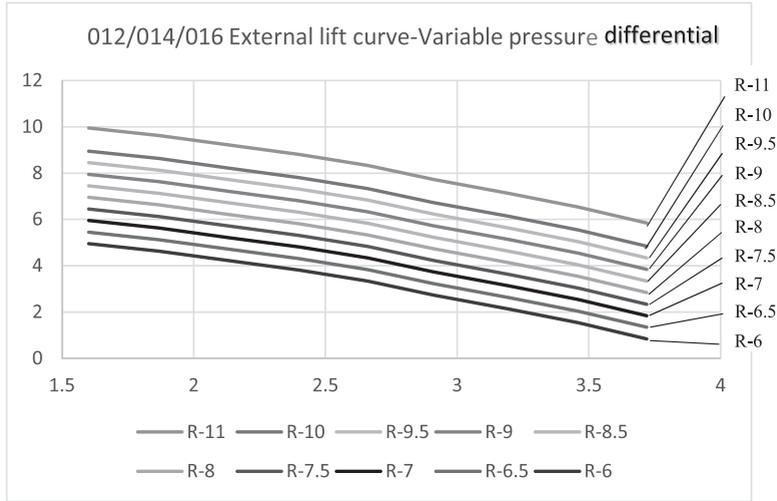
Pump operation mode	Display shows	Water pump power	Corresponding curve of external lift
Constant speed mode	C2	80~120W	Constant speed II file
	C3	180~300W	Constant speed III file
Variable pressure differential mode	11	100~200W	L-11
	10	90~180W	L-10
	9.5	85~165W	L-9.5
	9	80~150W	L-9
Constant differential pressure mode	11	180~250W	R-11
	10	150~220W	R-10
	9.5/9.0	140~180W	R-9.5, R-9.0
	8.5/8.0	120~160W	R-8.5, R-8.0
	7.5/7.0	100~140W	R-7.5, R-7.0
	6.5/6.0	80~120W	R-6.5, R-6.0



**UNIT EXTERNAL HEAD (MASTER PRESSURE LOSS HAS BEEN DEDUCTED)**

Measurement unit (contain water pump) to the inlet and outlet water pressure difference, can draw a closed head under the water, the closed to lift the water flow basic as shown in the closed pressure curve, the pipeline system design "closed pressure curve" for reference.





Note: without a pump unit under the rated flow resistance of 35

## WATER TREATMENT

The declared cooling capacity of unit on nameplate or other catalogs is based on the situation that fouling factor is 0.018m<sup>2</sup>°C/kW. Dirt, filth, oil or other impurities all will have a negative effect on the heat transfer efficiency and the unit performance. Foreign matters in chilled water would increase water pressure drop of the heat exchanger, reduce water flow and cause mechanical damage for pipes of heat exchanger.

Strict measurement should be carried out for water quality for the water system of unit, and water quality should conform to requirements in the table of chiller water requirement

PROJECT	UNIT	value	result	
			corrosion	scale
PH (25°C)		7.5-8.0	○	
SO4--	ppm	<100	○	
HCO3-/ SO4--	ppm	> 1.0	○	
Cl-	ppm	<50	○	
PO4	ppm	<2.0	○	
NH3	ppm	<0.5	○	
Free Chlorine	ppm	<0.5	○	
Fe+++	ppm	<0.5	○	
Mn++	ppm	<0.05	○	
CO2	ppm	<10	○	
H2S	ppb	<50	○	
Temperature	°C	<65	○	○
Oxygen content	ppm	<0.1	○	
Total hardness	dH	4.8-8.5	○	○



### Cautious:

1. Regular measurement on water quality should be conducted before unit installation and during in service, and water quality should conform to the requirements in the above table. Corrosion-related leak of heat exchanger and serious deposition may occur if water quality is over proof for long time.
2. Projects with corrosion tendency indicate that long-term water quality exceeding the allowed value can lead to leakage of heat transfer pipe corrosion, making the unit unable to operate normally and affecting normal use;
3. The project with scaling tendency indicates that the water quality exceeds the allowable value for a long time, which will lead to serious scaling of the heat exchanger, affecting the heat exchanger, and directly leading to the cooling (heating) effect of the unit decreased;Users shall be at their own risk for any loss if it is due to the matter of water quality.

## STORAGE HOT WATER TANK INSTALLATION AND COMMISSIONING

### Hot Water Tank Water Injection

After all the pipelines have been connected, the water tank should be filled with water before commissioning:

- 1) Open all hot water taps and shower heads;
- 2) Open the water tank into the cold water shut-off valve;
- 3) Screw off the valve cap on the top of the water tank, and slightly loosen the valve core until there is gas out;
- 4) Turn off all hot water taps and shower heads when they have water flowing out;
- 5) Continue to fill the water to the exhaust valve at the top of the water tank to complete the exhaust;
- 6) Check the pipe for leaks.

**⚠ 注意:**

**Do not connect the power supply before the water tank is filled with water to avoid damage to the machine.**

**After commissioning, the automatic exhaust valve shall be opened to ensure that the air generated during hot water operation can be discharged in time.**

**Circulating Piping System Cleaning And Filling**

After all the pipelines are connected, the circulating piping system should be filled with liquid before commissioning. Connect the infusion device to the infusion unit that comes with the tank and switch on the pump for the infusion and cleaning equipment. Pay attention to the following items when filling the liquid:

- 1) When filling the liquid, the gas in the circulating piping system liquid should be drained as much as possible.
- 2) In most systems that use pure water as a heat transfer medium, warm water of 60 to 70 °C should be used for charging.
- 3) At the same time, the system should check the pressure resistance of the system. Generally, it must be kept at a pressure of 0.6Mpa for not less than 15 minutes.
- 4) The filling process usually needs to be repeated (about 3 to 5 times) until there are no air bubbles in the filling tank.
- 5) When filling the liquid, pay attention to the gas that may remain in the pump body.
- 6) Fill the liquid until the system pressure is stable, make sure there is no leakage, refill the system to a system pressure of 0.25Mpa.

**⚠ Warning:**

**After the commissioning of the heat collecting circulation pipeline system in the severe cold area, the pipeline insulation shall be thickened.**

**ELECTRICAL CONNECTION**

The units are shipped with all factory-mounted controls wired for operation.

**Field Wiring** – Power wiring must be provided through a non-fused disconnect switch to the unit terminals in accordance with GB or local code requirements. Minimum circuit ampacity and maximum dual element fuse size are given in Electrical Data.

Only copper power wiring should be used for supplying power to the unit. This is recommended to avoid safety and reliability issues resulting from connection failure at the power connections to the unit. Aluminum wiring is not recommended due to thermal characteristics that may cause loose terminations resulting from the contraction and expansion of the wiring. Aluminum oxide may also build up at the termination causing hot spots and eventual failure.

See unit wiring diagrams for field and power wiring connections, communication wiring connections, modular wiring, alarm contactors, remote switch input, remote cooling/ heating switch, etc.

**ALARM STATUS CONTACTS**

Normally-open contacts are available for each unit. These normally-open contacts remain open when the system is functioning normally. The respective contacts will close when the unit is shut down on a unit fault, or locked out on a system fault. For modular applications, the master unit will not only output internal fault, but also the fault of subordinate units. Field connections are at terminals 6 to 8.

**REMOTE SWITCH CONTACTS**

To remotely start and stop the unit, dry contacts can be wired to terminals 2 to 4. Refer to unit wiring diagram.

The function will be available after being activated through HMI.

## REMOTE C/ H SWITCH

The contacts are used to switch unit operating mode remotely. Dry contacts can be wired to terminals 1 to 5. Refer to unit wiring diagram.

The function will be available after being activated through HMI.

## EXTERNAL INTERLOCK

The unit will be allowed to run only if the interlock is connected. It is used to link external facilities like fire alarms in case there's an emergency cutoff. It is wired to terminals 3 to 4.

External interlock is short-circuited before delivery.

## COMPRESSOR HEATER

Compressor heaters are standard. All compressors utilize one heaters with 20 W each.

Compressor heater will be switched on in standby mode when ambient temperature is below 12 °C. This will assure that liquid slugging and oil dilution does not damage the compressors.

## PRESSURE CUTOFF

One high pressure cutoff is installed in the discharge piping of each system. The HP cutoff opens at 4.03 MPa (585 PSIG) and closes at 3.1 MPa (450 PSIG).

## SAFETY PRECAUTIONS

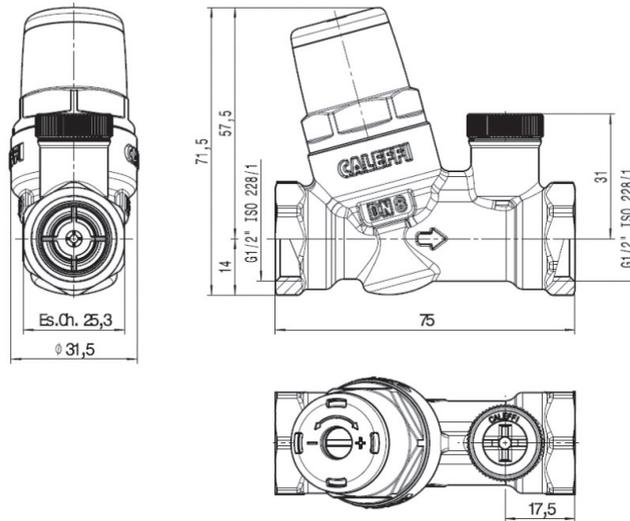
**Please comply strictly with the following important items related with safety in “safety precautions”**

1. The units YVAG012~033HSE can be connected only to a power supply with system impedance no more than 0.184 ohm. If necessary, please consult your supply authority for system impedance information.
2. Wire should conform to national standards, its diameter should not be lower than recommended wire diameter and its weight shall not be lighter than chloroprene rubber armored cable (No. 57 wire in IEC60245).
3. Only professionals from manufacturers, its service departments or other similar institutions can renew the broken flexible power wires for safety reasons.
4. Never share the power supply with other electric appliances in case of overload. Earth leakage circuit breaker matching with working voltage of unit should be used.
5. Only designated accessories by YORK can be used, and services of installation and technology support can be obtained from manufacturers or authorized resellers. Fail to correct installation for control accessories may cause malfunction of the controller or electric shock etc. Users are not allowed to make any repair which may cause damage or electric shock. For any maintenance demand, please contact the manufacturer.
6. Never connect ground wire of unit power supply with that of a gas fuel pipe, water pipe, lightning arrester or telephone. Improper ground connection may cause electric shock etc. Make sure connection between ground wire and the ground terminal/the grounding electrode is normal with regular inspection.
7. Field wiring should avoid edges of sheet metal, sharp point of bolt, high-temperature tube pipe and compressor shell in case of wire damage.
8. Wire fasteners should be used in case of wires dropping out and wire damage caused by friction with other parts.
9. Never touch with control elements and terminal parts other than control panel in case of personal injury as there's electricity in control cabinet before power supply is cutoff.
10. Never operate the wire controller with sharp materials for fear of scratching the wire controller screen. Never

contort or pull out electric wires in the control cabinet to prevent loose wiring and control failure. Benzene, diluents or chemical reagent is not allowed to clean the controller and control elements to avoid corrosion or malfunction. Use cloth with neutral decontaminant solution for cleaning during which the cloth should not be too wet; then clean again with dry cloth. Never excessively press on the screen in case of allochromasia.

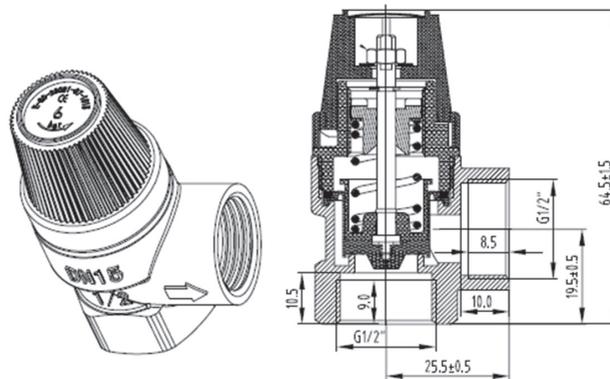
11. Electric wires and electronic wires should be separated during unit wiring for normal communication and operation.

**ACCESSORY DIMENSIONS**



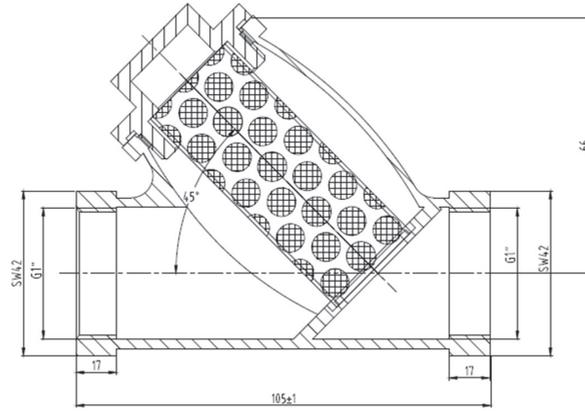
**AUTO-SUPPLY VALVE DIMENSION**

**Notes:** All dimensions are in mm unless specified otherwise

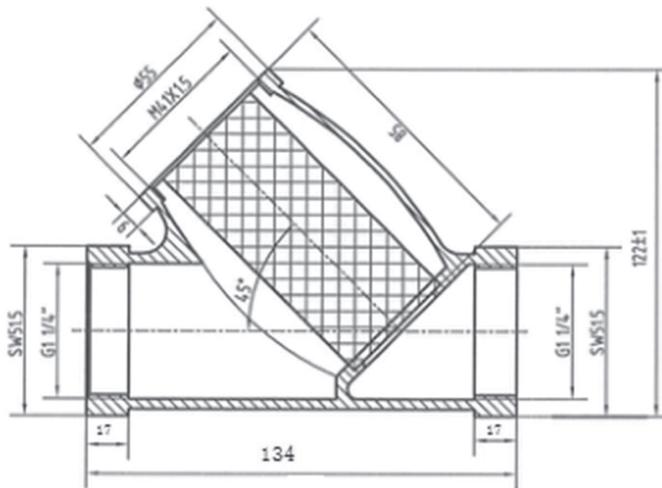


**RELIEF VALVE DIMENSION**

**Notes:** All dimensions are in mm unless specified otherwise



WATER FILTER DIMENSION (012~016)



WATER FILTER DIMENSION(020~033)

**Notes:** All dimensions are in mm unless specified otherwi

## SECTION 3 ELECTRICAL CONTINUITY

### ELECTRICAL CONNECTION

The units are shipped with all factory-mounted controls wired for operation.

**⚠ Field Wiring** – Power wiring must be provided through a non-fused disconnect switch to the unit terminals in accordance with GB or local code requirements. Minimum circuit ampacity and maximum dual element fuse size are given in Electrical Data.

Only copper power wiring should be used for supplying power to the unit. This is recommended to avoid safety and reliability issues resulting from connection failure at the power connections to the unit. Aluminum wiring is not recommended due to thermal characteristics that may cause loose terminations resulting from the contraction and expansion of the wiring. Aluminum oxide may also build up at the termination causing hot spots and eventual failure.

See unit wiring diagrams for field and power wiring connections, communication wiring connections, modular wiring, alarm contactors, remote switch input, remote cooling/ heating switch, etc.

### SAFETY PRECAUTIONS

**Please comply strictly with the following important items related with safety in “safety precautions”**

- 1) The units YVAG012~033HSE can be connected only to a power supply with system impedance no more than 0.184 ohm. If necessary, please consult your supply authority for system impedance information.
- 2) Wire should conform to national standards, its diameter should not be lower than recommended wire diameter and its weight shall not be lighter than chloroprene rubber armored cable (No. 57 wire in IEC60245).
- 3) Only professionals from manufacturers, its service departments or other similar institutions can renew the broken flexible power wires for safety reasons.
- 4) Never share the power supply with other electric appliances in case of overload. Earth leakage circuit breaker matching with working voltage of unit should be used.
- 5) Only designated accessories by YORK can be used, and services of installation and technology support can be obtained from manufacturers or authorized resellers. Fail to correct installation for control accessories may cause malfunction of the controller or electric shock etc. Users are not allowed to make any repair which may cause damage or electric shock. For any maintenance demand, please contact the manufacturer.
- 6) Never connect ground wire of unit power supply with that of a gas fuel pipe, water pipe, lightning arrester or telephone. Improper ground connection may cause electric shock etc. Make sure connection between ground wire and the ground terminal/the grounding electrode is normal with regular inspection.
- 7) Field wiring should avoid edges of sheet metal, sharp point of bolt, high-temperature tube pipe and compressor shell in case of wire damage.
- 8) Wire fasteners should be used in case of wires dropping out and wire damage caused by friction with other parts.
- 9) Never touch with control elements and terminal parts other than control panel in case of personal injury as there's electricity in control cabinet before power supply is cutoff.
- 10) Never operate the wire controller with sharp materials for fear of scratching the wire controller screen. Never contort or pull out electric wires in the control cabinet to prevent loose wiring and control failure. Benzene, diluents or chemical reagent is not allowed to clean the controller and control elements to avoid corrosion or

malfunction. Use cloth with neutral decontaminant solution for cleaning during which the cloth should not be too wet; then clean again with dry cloth. Never excessively press on the screen in case of allochromasia.

- 11) Electric wires and electronic wires should be separated during unit wiring for normal communication and operation.
- 12) The control cabinet has strong power, do not touch the control elements and terminal components other than the control screen before cutting off the power supply to the unit, so as not to cause personal injury.

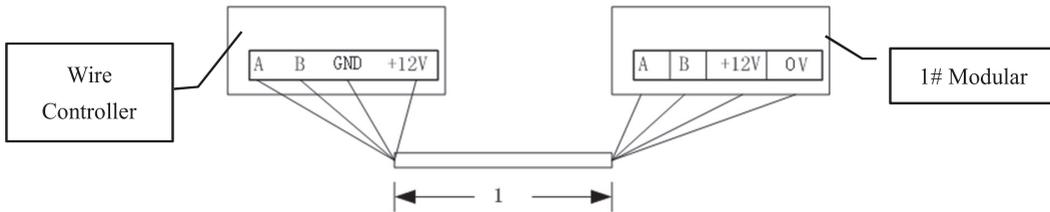
**ELECTRICAL DIAGRAM**

All electrical wiring should be carried out in accordance with local regulations. Route properly sized cables to the cable entries in the side of the unit.

It is the responsibility of the user to install over current protection devices between the supply conductors and the power supply terminals on the unit.

**WIRE CONTROLLER INSTALLATION**

**STEP 1: Wiring**

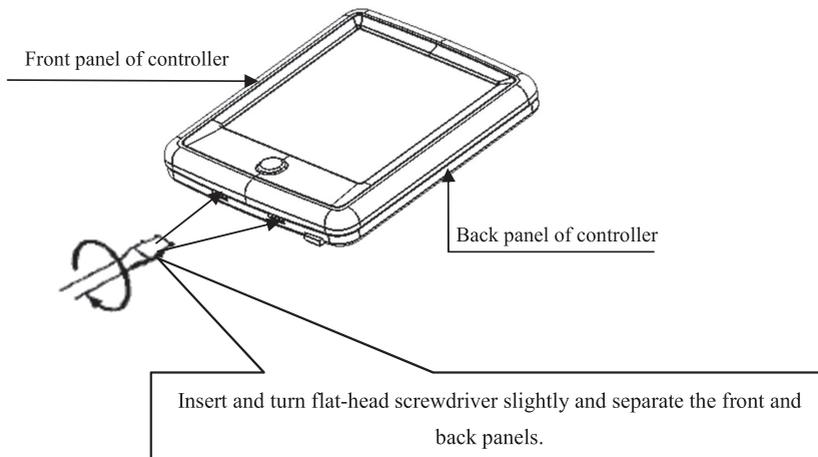


WIRE CONTROLLER CONNECT TO UNIT

**Notes:**

- 1. Total length of communication and power supply line should be within 15m.
- 2. A, B, 12V, and 0V should be connected correspondingly in case of malfunction or controller damage.

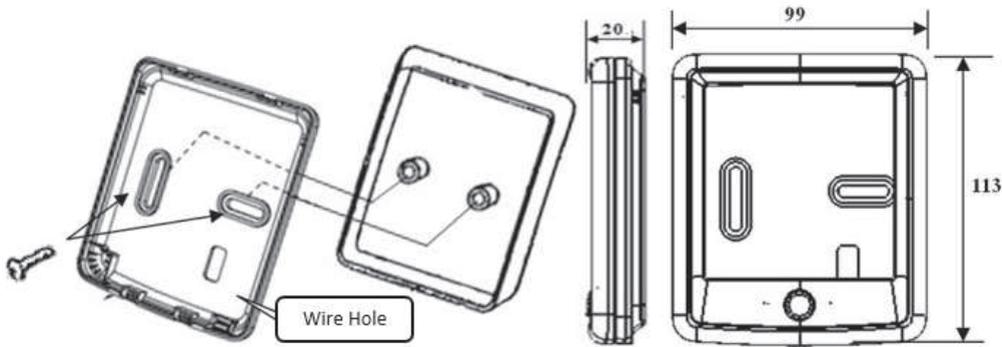
**STEP 2: Panel Disassembly**



WIRE CONTROLLER STRUCTURE

**Notes:** As printed circuit board is on the front panel of controller, be cautious when using flat-head screwdriver.

**STEP 3: Back Panel Fixation**



Back panel;      Pre-embedding and installation box;      Controller size  
 Back Panel Fixation

**Notes:**

1. Installed on flat surface, never excessively fasten upon the screw in case of deformation of back panel.
2. Installation box and communication cable pipe (supplied by user) from indoor unit to wire controller shall be pre-embedded. Strip off the protective film from screen slowly in case of damage.
3. Power supply should be switched off and never touch printed circuit board by hands in case of any damage while installation.

**THERMOSTAT INSTALLATION**

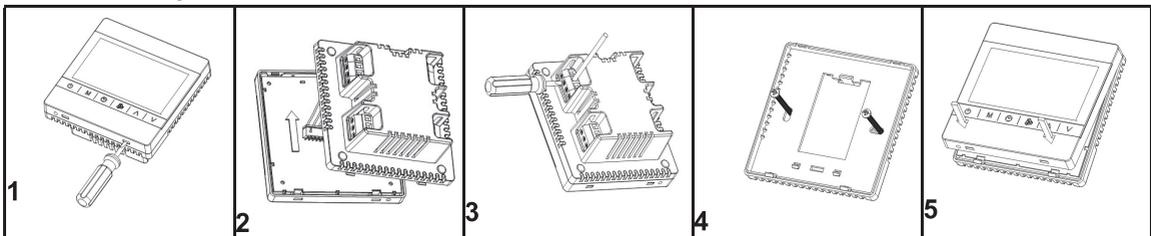
Install the T8610 where the occupant can read the display and adjust the set point easily. Situate the thermostat where the temperature is representative of the general room conditions. Avoid installing the T8610 near cold or warm air drafts, radiant heat, on an outside wall, or in direct sunlight.

1. Installation method

Thermostat to a 75x75x35mm standard electrical wall box. follow the instructions in removing the base and then proceed to the wall box Mounting and the Wiring sections.

Note: Require two No. Mx5 mounting screws (Included in the box, screw PWT2.5X5X5.5 is required if missing).

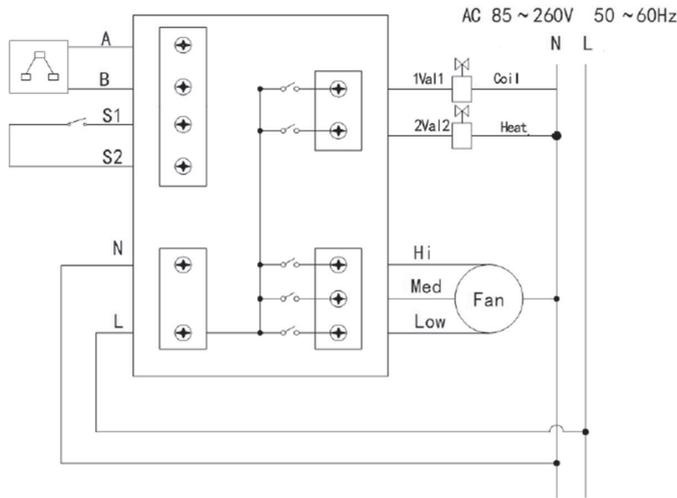
2. Installation Diagram



Note: 1, When wiring T8610 Thermostat, use wire nuts to finish and isolate each connection, wire according to Figure 4-5

3. Thermostat wiring diagram

**T8610 thermostat wiring diagram**



Note:

Do not attempt to repair the T8610 Series thermostat. In case of an improperly functioning control, contact the nearest Johnson Controls? Representative, and specify the desired product code number. When contacting the supplier for a replacement please state the type/model number of the control located on the data plate or cover label.

**SW1 Dial set confirmation**

Line Controller Dial Code			Unit type
SW1-1	SW1-2	SW1-3	
OFF	OFF	OFF	Heat Pump Unit (Factory Default)
ON	OFF	OFF	Air-cooled Chiller
OFF	ON	OFF	Ethylene Glycol Unit
ON	ON	OFF	EVI Heat Pump Unit
OFF	OFF	ON	Heat Recovery Unit
ON	OFF	ON	Heat Recovery EVI Unit
OFF	ON	ON	Other

Line Controller Dial Code	Function
SW1-4	
OFF	GB
ON	CE

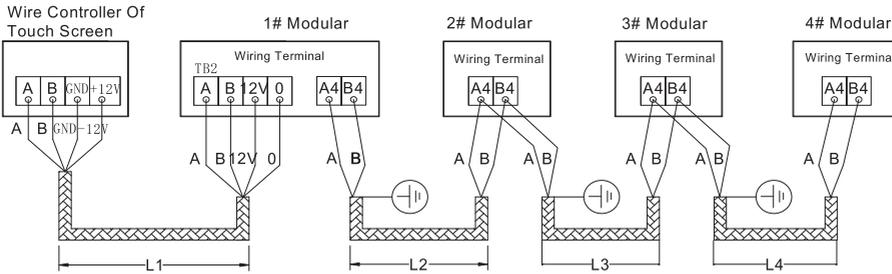
**Pull out the battery compartment and snap the front and rear panels together**

**⚠ Caution:**

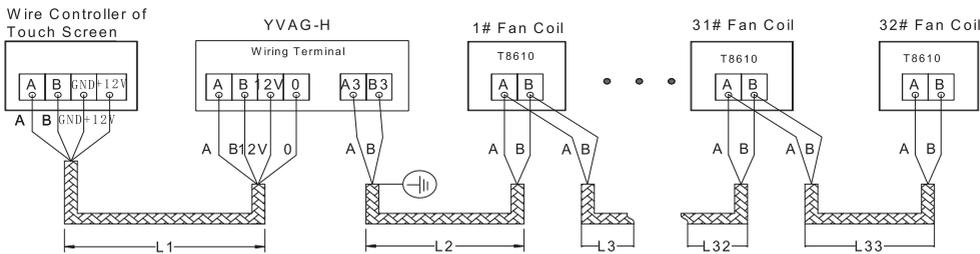
When the isolation bar is not pulled out or the battery is dead, it will lose time when power is off, affecting time-related functions and protection; it may also cause time chaos due to static electricity when power is on, affecting time-related functions and protection.

**COMMUNICATION CABLE CONNECTION**

**COMMUNICATION WIRING DIAGRAM FOR MODULAR UNIT:**



**COMMUNICATION WIRING DIAGRAM FOR FAN COIL CONTROL:**



**Notes:**

1. Communication cables between host and wire controller should be 85% net type shielded wire of four-core, which length is within 15m.
2. Communication cables between units should be 85% net type shielded wire of two-core, specifications and length are as following table.

**COMMUNICATION CABLE SPECIFICATION**

Total length of communication cable (from wire controller to the last unit)	L=L1+L2+L3+L4+.....+L33 (Unit: m)	
		L < 100 m
Model of communication line	RVSP2×0.75mm <sup>2</sup>	RVSP2×1.0mm <sup>2</sup>

**Notes:**

- All the communication cables should be equipped on site as per the above requirement, and any inconformity should be submitted to YORK Company for confirmation in case of unit malfunction.
- Modular connection and fan coil joint control cannot be applied simultaneously
- YVAG-HR can be spliced with YVAG012-033R module, Except YVAG040R.
- YVAG-HR and YVAG012-033R are used for module splicing, YVAG-HR must be 1# machine

**Function and Dial List**

Control function (HMI、Thermostat、Communication Module、Wind Disk Joint Control) and dial List is adjusted by referring to the table below

NUMBER	Wiring			Dial-up		Parameter Setting (Wire Controller)				
	P204	P206	P1	DIP3 01-5	DIP3 01-7	PARAMETER ITEM 7	PARAMETER ITEM 25	PARAMETER ITEM 26	PARAMETER ITEM 31	PARAMETER ITEM 43
	Motherboard A1/B1	Motherboard A3/B3	BAS			Number of modules	Mode control options	On/off control options	Number of indoor units	Indoor controller type
1	HMI	/	/	OFF	OFF	1	0-HMI	0-HMI	0	According to the type of indoor controller, set: 0-T8600, 1-T8610. If the indoor controller is not connected to the outdoor unit, press the default value
2	HMI	T8610	/	OFF	ON	1	0-HMI、 4-HMI+ Thermostat	0-HMI、 4-HMI+ Thermostat	Actual Quantity	
3	/	T8610	/	OFF	ON	1	5- Thermostat	5 Thermostat	Actual Quantity	
4	HMI	BAS	/	OFF	OFF	1	0-HMI、 2-HMI+ BAS	0-HMI、 2-HMI+ BAS	0	
5	HMI	BAS	T8610	OFF	OFF	1	0-HMI、 2-HMI+BAS、 3-BAS、 4-HMI+ Thermostat 5- Thermostat、 6-BAS+ Thermostat、 7-HMI+BAS+ Thermostat	0-HMI、 2-HMI+ BAS、 3-BAS、 4-HMI+ Thermostat 5- Thermostat、 6-BAS+ Thermostat、 7-HMI+BAS+ Thermostat	Actual Quantity	
6	BAS	T8610	/	ON	ON	1	3-BAS、 5- Thermostat、 6-BAS+ Thermostat、	3-BAS、 5- Thermostat、 6-BAS+ Thermostat、	Actual Quantity	
7	BAS	/	/	ON	ON	1	3-BAS	3-BAS	0	
8	HMI	Modular	/	OFF	OFF	Actual Quantity	0-HMI	0-HMI	0	
9	HMI	Modular	T8610	OFF	OFF	Actual Quantity	0-HMI、 4-HMI+ Thermostat	0-HMI、 4-HMI+ Thermostat	Actual Quantity	
10	/	Modular	T8610	OFF	OFF	Actual Quantity	5- Thermostat	5- Thermostat	Actual Quantity	
11	HMI	Modular	BAS	OFF	ON	Actual Quantity	0-HMI、 2-HMI+ BAS	0-HMI、 2-HMI+ BAS	0	
12	BAS	Modular	T8610	ON	ON	Actual Quantity	3-BAS、 5- Thermostat、 6-BAS+ Thermostat、	3-BAS、 5- Thermostat、 6-BAS+ Thermostat、	Actual Quantity	
13	BAS	Modular	/	ON	ON	Actual Quantity	3-BAS	3-BAS	0	

**NOTE:**

- All communication cables need to be configured on site according to the above requirements
- The BAS/wire controller/communication fan interface needs to be set according to the needs by dialing the main board of the unit, and the wiring needs to be set up
- For details on dialing operation and parameter setting, please refer to the unit "Instruction Manual"

**COMMUNICATION CABLE CONNECTION**
**1. Unit Power Supply**
**POWER SUPPLY CABLE SPECIFICATION**

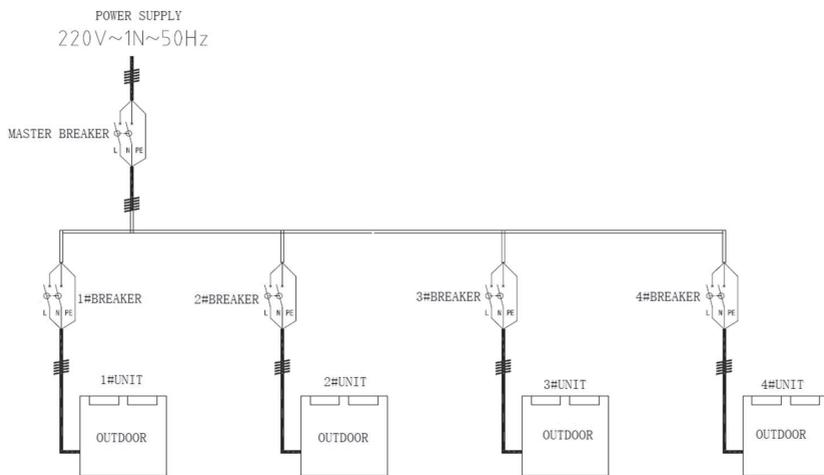
MODEL TYPE	012	014	016	020	022	025	028	033
POWER SUPPLY	220V 1N~50Hz			380V /400V 3N~50Hz				
MAXIMUM OPERATING CURRENT	24A	33A	33A	17A	17A	19A	21A	22A
RECOMMENDED WIRE DIAMETER	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>	4mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>	6mm <sup>2</sup>
RECOMMENDED BREAKER (EARTH LEAKAGE PROTECTOR)	D Type 40A 2P	D Type 40A 2P	D Type 40A 2P	C Type 25A 4P	C Type 25A 4P	C Type 25A 4P	C Type 32A 4P	C Type 32A 4P

**Notes:**

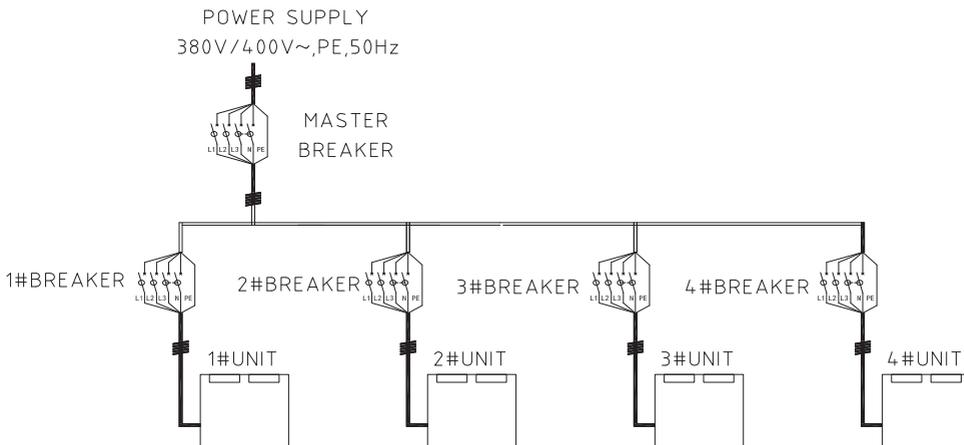
1. Cable selection specification above is suitable for the conditions where ambient temperature is under 40°C, local regulations should be referred to for practice.
- ⚠ **2. Leakage protector must be deployed, and reliable ground connection should be conducted on site.**
3. For any discrepancy on site, like capacitance decreasing, refer to IEC standards and requirements by cable manufacturers for selection.
4. Only copper conductor can be applied as power supply cable and ZR-RVV type cable is recommended.

**2. System Power Supply Distribution**

**Single-phase power unit**



**Three-phase power unit**



SYSTEM POWER SUPPLY DISTRIBUTION DIAGRAM

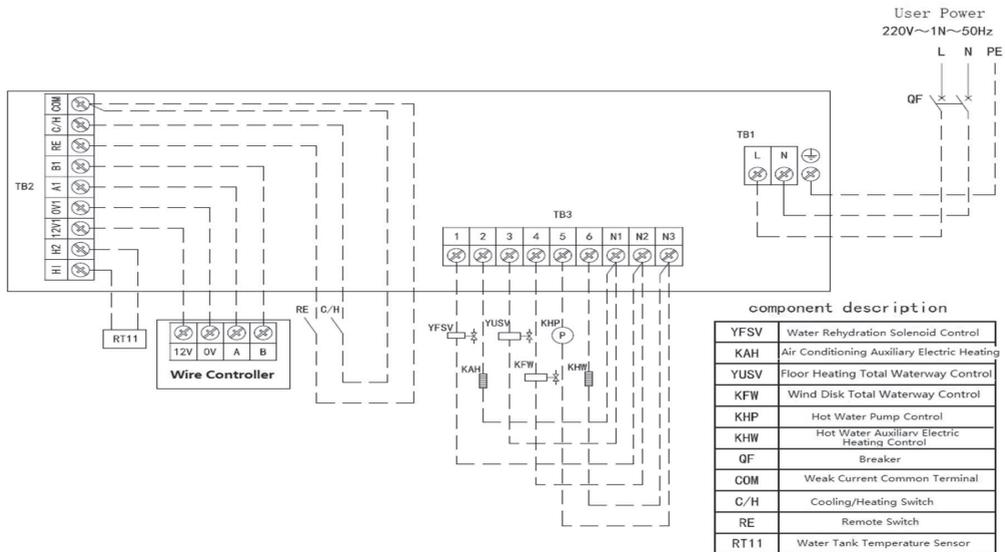
**Notes:**

1. User is responsible for providing breakers ( including master breaker).
2. Modular system with more than 4 units will not be permitted.

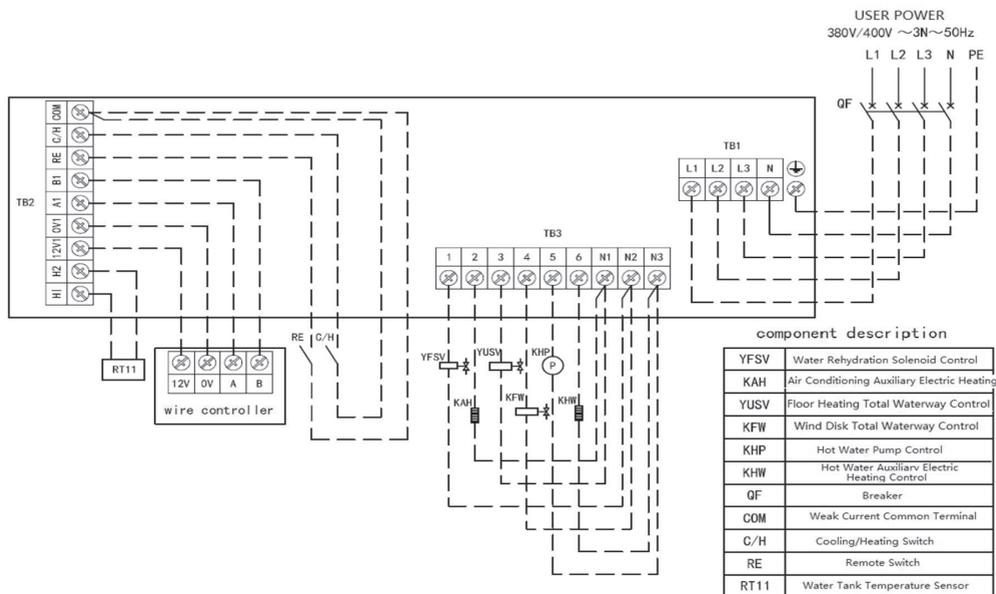
3. Specifications of the master breaker and the power supply cable need to be selected according to the total load. Please contact YORK service personnel for professional support.
4. This manual for the requirement of user power supply voltage: 012/014/016 units for 220 V , 020/022/025/028/ 033 units for 380 V and 400 V.

### 3. System Power Distribution Diagram

#### YVAG012/014/016HSE Unit Wire Diagram



#### YVAG020/022/025/028/033HSE Unit Wire Diagram

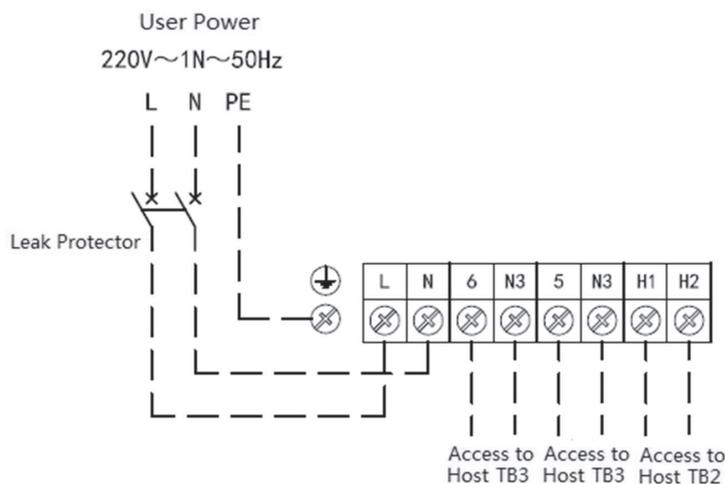


#### Notes:

- The power supply of this unit is divided into single-phase ac 220V and three-phase ac 380V according to different models. The circuit breaker is provided by the user.

- Terminal blocks of the power supply should be circular terminals, while other control signal can be connected with U shape terminals.
- Wiring shall be performed according to the tag number on the terminals.
- Use power supply cables of OT5.5-6 end socket with insulating sheath to connect to the power supply terminals.
- Please apply RV0.5mm<sup>2</sup> wire for external interlocking, remote switch and cooling/heating switch installation.
- Auxiliary electric heater of water system, alarm and solenoid valve for floor heating need to be provided by user.
- The cable diameter of auxiliary electric heater is decided by the power output of the auxiliary electric heater; the coils of alarms, contactors and solenoid valves for floor heating can apply RV0.5mm<sup>2</sup> wire.
- In modular system, wirings of external interlocking, remote switch, cooling/heating switch, auxiliary electric heater and solenoid valve for floor heating are all connected to the 1# modular.
- 012 / 014/016 unit can meet the power input voltage is 220 v under the conditions of use
- 020/022/025/028 / 033 unit can meet the power input voltage is 380 v and 400 v under the conditions of use

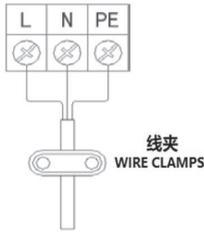
#### 4. YHT100-500W5 Water Tank Wire Diagram



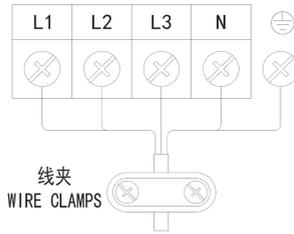
#### Notes:

- The water tank power supply is a single-phase AC 220V, the power supply can come from the user or the main power supply of the host;
- The leakage protector is provided by the user, such as the main power supply of the host, the host in-line circuit breaker selection needs to consider the water tank electric heating power;
- The power cord diameter is not less than 4 mm<sup>2</sup>, and the water pump wiring is not less than 1.5 mm<sup>2</sup>;
- Terminal blocks of the power supply should be circular terminals, while other control signal can be connected with U shape terminals.
- Field wiring must avoid sheet metal sharp edges, screw tips and high temperature copper tubes to avoid damage to the wires;
- The wiring must be secured with a clip after the wiring is completed;
- Wiring shall be performed according to the tag number on the terminals.

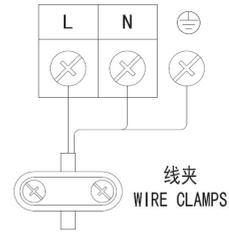
5. Unit and water tank power wiring



YVAG012-016HSE



YVAG020-033HSE



YHT100-500

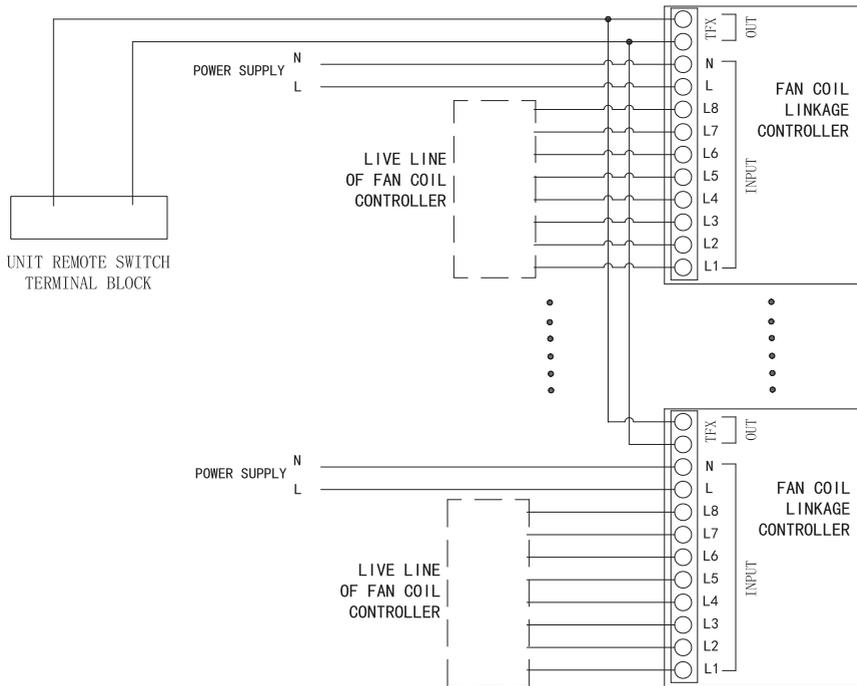
**Warning:**

- 1) All the user's cable termination shall be pressure welded with copper terminals.
- 2) Directly intertwine the cable on the binding post is strictly forbidden.

**AIR SIDE TERMINAL CONNECT**

If the user need to operate the unit through solenoid valve connection point of the fan coil (floor heating) controller, a fan coil linkage controller (as option) is necessary to be added. The wiring schematic diagram is shown below:

**FAN COIL LINKAGE CONTROLLER WIRING**

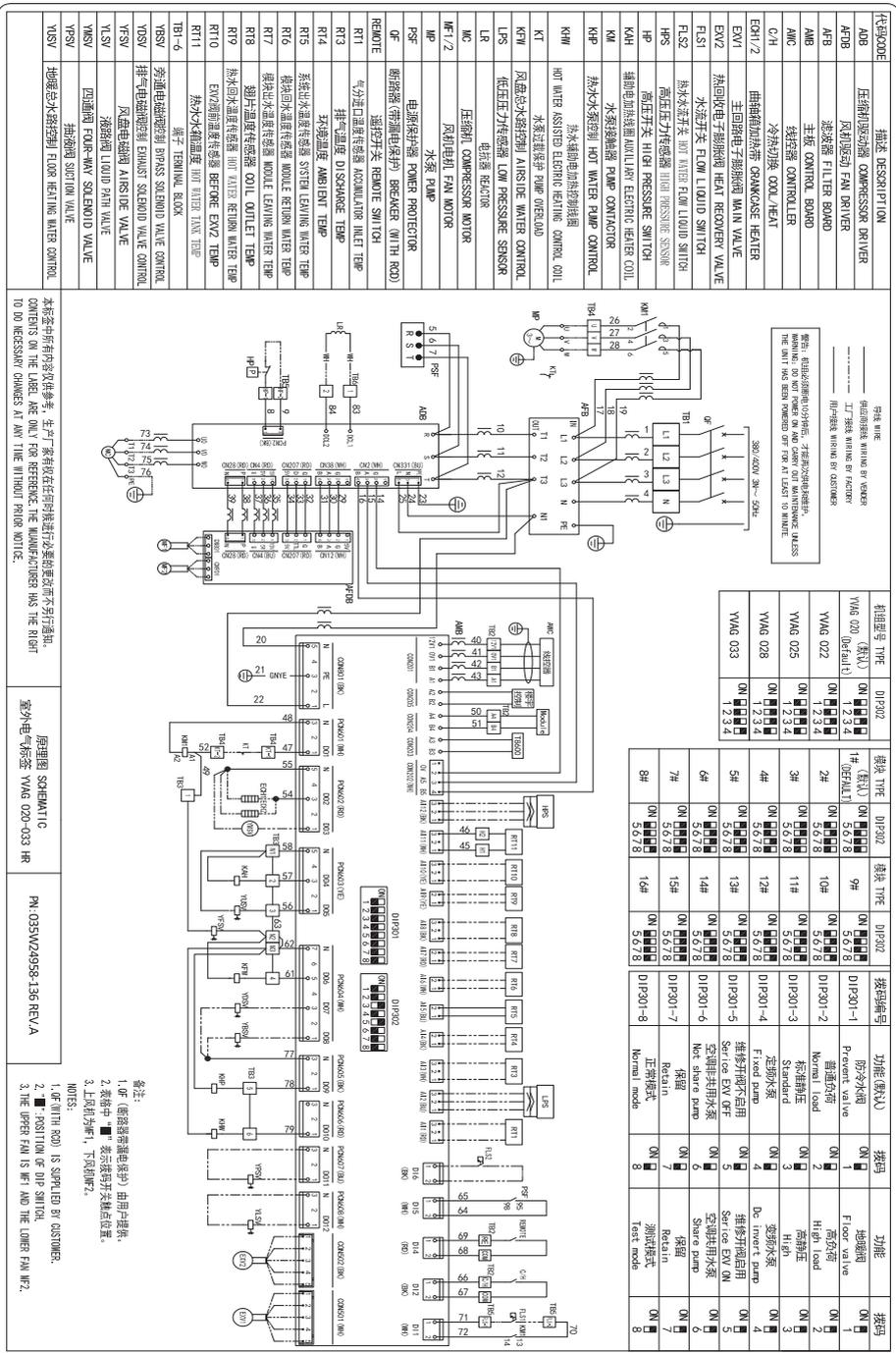


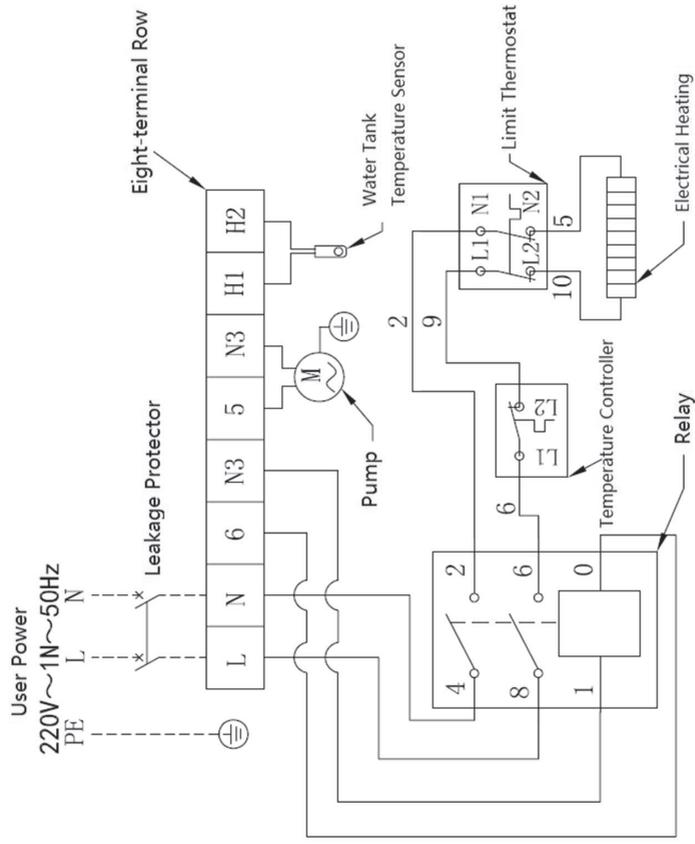
- The remote control software V2.0 needs to set the remote power on/off option on the online controller to enable it. The unit parameter setting 28 item is set to 01 (the switch is only remote, the mode is local) or 02 (the switch mode is remote); When the control software V1.2 is set to 00 in the unit parameter setting 28, the remote control can be enabled at the same time (mode local), but the remote control can be realized when the online control is turned on. When 28 items are set to 01 or 02 Same as the wire control software V1.1

**Notes:**

- Live line of fan coil (floor heating) controller means the control line which controls a two-way or three-way valve (normally closed type), and the fan coil linkage controller need to be connected with another power supply.
- All the controller of air side terminals need to be connected to the fan coil linkage controller.
- A single fan coil linkage controller can be connected with 8 temperature controllers at most.
- Fan coil linkage controllers can be in modular connection
- The remote control software V2.0 needs to set the remote power on/off option on the online controller to enable it. The unit parameter setting 28 item is set to 01 (the switch is only remote, the mode is local) or 02 (the switch mode is remote); When the control software V1.2 is set to 00 in the unit parameter setting 28, the remote control can be enabled at the same time (mode local), but the remote control can be realized when the online control is turned on. When 28 items are set to 01 or 02 same as the wire control software V1.1.
- Parameter settings should be completed by York after-sales personnel.







## SECTION 4 –WIRE CONTROLLER AND THERMOSTAT

### OPERATION



Don't touch the screen with sharp points or edges which may damage the controller. Don't twist or pull the wires of the controller. Don't wipe the controller with benzene, diluent or chemical cloth. Otherwise discoloration or mechanical failure may occur. To remove dirt, dip the cloth in the water with a neutral detergent and wring the water before cleaning. Wipe dry the controller with dry cloth. Do not exert excessive force on the display or connection in order to avoid changes in hue.

**NOTICE:** Wire controller is required, T8610 thermostat are optional accessories. Please read the corresponding operating instructions according to the selected thermostat.

#### WIRE CONTROLLER OPERATION

##### Introduction

The touch screen wire controller is standard optional for remote controls of YVAG units. The functions of parameter setting, operating status viewing and fault recording are available. Instead of describing the information above, the wire controller utilizes graphic icons in user interface.

##### Interface



Area 1: Date and time display;

Area 2: Timer display;

Area 3: Temperature display (include the set point and actual controlled water temperature);

Area 4: Serial number display;

Area 5: Operating mode setting;

Area 6: Running status display;

Area 7: Touch-keys.

The meanings of the icons are listed in the table below

### Functions Of Keys

KEY	MEANING	KEY	MEANING	KEY	MEANING
	COOLING		FUNCTION		FAULT
	HEATING		TIMER		PUMP
	CONFIRM		UP		LOCK
	CANCEL		DOWN		LOW SOUND
	NORMAL HOT WATER		FAST HOT WATER		

### Basic Operations

#### Start and Stop the Unit

Press the button below on the screen to start or stop the unit.



#### Operating Mode

Press the key of “COOLING” 、 “HEATING” or “HOT WATER” to set or switch operating modes. The “SET” icon will be showing during the process. Press “CONFIRM” to finish the setting, or the controller will automatically save if there’s no operation for 10 seconds. Press “CANCEL” to abandon the setting.

#### Liquid Temperature Setpoint

Press “UP” or “DOWN” key in daily display screen to set target liquid temperatures. Press “CONFIRM” to finish the setting, or the controller will automatically save if there’s no operation for 10 seconds. Press “CANCEL” to abandon the setting.

### Advanced Operations

#### Date and Time

Press the “TIMER” and “FUNCTION” keys simultaneously for 5 seconds to enter the Date and Time setting screen. The “TIMER” and “SET” icons will flicker while the function is activated.

Press “TIMER” to toggle between Year, Month, Day, Hour and Minute. Press “UP” and “DOWN” icons to modify the values. Touch and hold the icons to increase or decrease the values by 5 each time.

Press “CONFIRM” to save the value and auto switch to the next setting. Press “TIMER” to cancel the operation and auto switch to the next setting.

The setting will terminate if there’s no operation for 5 seconds or “CANCEL” is pressed.

**Schedule Timer**

Press the “TIMER” key for 5 seconds to enter Schedule Timer setting screen. The “TIMER”, “SET” and “ON” icons will flicker while the function is activated.

The Schedule Timer will toggle between Timer ON, Timer OFF and Timer Mode.

Press “FUNCTION” to select Hour and Minute which are able to be set by “UP” and “DOWN” keys. Once the setting is finished, press “CONFIRM” to save the value and auto switch to the next setting. Press “TIMER” to cancel the operation and auto switch to the next setting.

In Timer Mode setting, press “FUNCTION” to switch the modes between ONCE, DAILY and WEEKLY. Press “CONFIRM” to save the value and auto switch to the next setting. Press “TIMER” to cancel the operation and auto switch to the next setting.

In WEEKLY timer setting, the weekdays are able to be switched over by pressing “FUNCTION” key. Press “UP” to “CONFIRM” the weekday timer activation and move on to the next weekday. Press “DOWN” to cancel the activation of the weekday and move on to the next.

The Schedule Timer setting will terminate if there’s no operation for 5 seconds or “CANCEL” is pressed.

**Parameter Setting**

Press the “FUNCTION” key in daily display for 5 seconds to enter System Parameter Setting screen. Repeat the operation to enter Module Parameter Setting screen. The “LOCK” icon will appear while the function is activated.

In System Parameter Setting, the parameters will be displayed in hour display area (Area 1) in sequence by pressing “FUNCTION” key.

In Module Parameter Setting, the modules can be switched over by pressing “TIMER” key.

Press “UP” or “DOWN” to set the value and press “CONFIRM” to save the value. The setting will terminate if there’s no operation for 5 seconds or “CANCEL” is pressed.

**Fault Diagnosis**

Press “FUNCTION” and “CANCEL” keys for 5 seconds to enter Fault Diagnosis. The “FAULT” icon will appear while the function is activated.

The fault codes will be displayed in temperature display area (Area 3) with time recorded. The serial number of the module will be displayed as 10-bit of Area 4.

Press “UP” and “DOWN” for more fault information. A maximum of 16 faults can be recorded.

The setting will terminate if there’s no operation for 5 seconds or “CANCEL” is pressed.

DESCRIPTION OF FAULT CODE (012~016)

DESCRIPTION	FAULT CODE
A11 Refrigerant inlet accumulator temperature sensor fault	1A
A12 Suction pressure transducer fault	2A
A13 Discharge temperature sensor fault	3A
A14 Ambient temperature sensor fault	4A

AI5 System leaving water temperature sensor fault	5A
AI6 System return water temperature sensor fault	6A
AI7 Unit leaving water temperature sensor fault	7A
AI8 Coil temperature sensor fault	8A
DI1 Water flow switch fault or water pump overload alarm	1d
DI3 Over pressure alarm	3d
Communication failure ( failure on 1# unit is between principal unit and wire controller while others for principal and subordinate unit.)	1E
Conflict setting of unit model type	2E
Excessive lower ambient temperature for cooling mode	4E
Excessive lower system leaving water temperature for cooling mode	6E
Excessive higher system leaving water temperature for heating mode	7E
Communication failure between principal unit and T8600 or BAS	9E
Freezing protection in winter	10E
Excessive lower unit leaving water temperature for cooling mode	11E
Excessive higher unit leaving water temperature for heating mode	13E
Excessive lower unit leaving water temperature for heating mode	15E
Excessive higher discharge temperature	1F
Freezing protection of BPHE	9F
Communication failure of unit (between Microboard and driver)	2p
Mismatching of driver type	4p
Compressor driver alarm	6p
Excessive higher speed of fan 1	8p
Excessive higher speed of fan 2	9p
Excessive lower speed of fan 1	10p
Excessive lower speed of fan 2	11p
Microboard hardware failure	14p
Driver hardware overcurrent	101
Compressor driving failure	102
Compressor overcurrent	103
Reserved	104
Sampling failure of compressor current	105
Heat sink/IPM overheating alarm	106
Pre-charge failure	107
DC bus over voltage	108
DC bus under voltage	109
AC input under voltage	110
AC input overcurrent	111
Driver check out failure	112

AC input hardware overcurrent	113
Driver temperature sensor fault	114

## DESCRIPTION OF FAULT CODE (020~033)

DESCRIPTION	FAULT CODE
AI1 Refrigerant inlet accumulator temperature sensor fault	1A
AI2 Suction pressure transducer fault	2A
AI3 Discharge temperature sensor fault	3A
AI4 Ambient temperature sensor fault	4A
AI5 System leaving water temperature sensor fault	5A
AI6 System return water temperature sensor fault	6A
AI7 Unit leaving water temperature sensor fault	7A
AI8 Coil temperature sensor fault	8A
AI9 Economizer inlet temperature / Hot water return water temperature sensor failure	9A
AI10 Economizer outlet temperature sensor fault	10A
DI1 Water flow switch fault or water pump overload alarm	1d
DI3 Over pressure alarm	3d
DI5 Power failure	5d
DI6 Hot water flow failure	6d
Communication failure ( failure on 1# unit is between principal unit and wire controller while others for principal and subordinate unit.)	1E
Conflict setting of unit model type	2E
Excessive lower ambient temperature for cooling mode	4E
Excessive lower system leaving water temperature for cooling mode	6E
Excessive higher system leaving water temperature for heating mode	7E
Communication failure between principal unit and T8600 or BAS	9E
Freezing protection in winter	10E
Excessive lower unit leaving water temperature for cooling mode	11E
Excessive higher unit leaving water temperature for heating mode	13E
Excessive lower unit leaving water temperature for heating mode	15E
Excessive higher discharge temperature	1F
Freezing protection of BPHE	9F
Communication failure of unit (between Mainboard and driver)	2p
Mismatching of driver type	4p
Compressor driver alarm	6p
Excessive higher speed of fan 1	8p
Excessive higher speed of fan 2	9p
Excessive lower speed of fan 1	10p
Excessive lower speed of fan 2	11p
Inverter pump communication	12p

Inverter pump drive failure	13p
Mainboard hardware failure	14p
Mainboard and Fan1 communication failure	15P
Mainboard and Fan2 communication failure	16P
Driver hardware overcurrent	101
Compressor driving failure	102
Compressor overcurrent	103
Reserved	104
Sampling failure of compressor current	105
Heat sink/IPM overheating alarm	106
Pre-charge failure	107
DC bus over voltage	108
DC bus under voltage	109
AC input under voltage	110
AC input overcurrent	111
Driver check out failure	112
AC input hardware overcurrent	113
Driver temperature sensor fault	114
FOCx drive failure	115
FOCx/APFCx overcurrent	116

### Running Status

Press “FUNCTION” and “CONFIRM” keys for 5 seconds to enter Running Status viewing screen. The digital and analog inputs and outputs are displayed in sequence in hour display area (Area 1) by pressing “UP” and “DOWN” keys.

The modules can be switched over by pressing “TIMER” key.

Description of each running status parameters as shown in the table below

#### DESCRIPTION OF RUNNING STATUS (020~033)

Running status No.	Description
A1	AI1 Refrigerant temperature inlet accumulator
A2	AI2 Saturate temperature of suction pressure
A3	AI3 Discharge temperature
A4	AI4 Ambient temperature
A5	AI5 System leaving water temperature
A6	AI6 System return water temperature
A7	AI7 Unit leaving water temperature
A8	AI8 Coil temperature
A9	AI9 Economizer inlet temperature
A10	AI10 Economizer outlet temperature
17	Open steps of expansion valve1
18	Open steps of expansion valve2
21	Rotary speed of BLDC fan 1
22	Rotary speed of BLDC fan 2
23	Compressor frequency loading rate
24	Software version of Mainboard
26	Software version of wire controller

**Fault Reset**

Press “CONFIRM” and “CANCEL” keys for 5 seconds to reset the faults manually.

**Keylock**

Press “TIMER” and “DOWN” icons for 5 seconds to enter Keylock function. The “LOCK” icon will appear and all touch-keys and the physical button will be disabled while the function is activated.

Press “TIMER” and “DOWN” again to terminate the function.

**Pump Circulation**

Press “COOLING” key for 5 seconds in daily display to enter Pump Circulation function. The “PUMP” icon will appear. The pump will operate with no compressor running while this function is activated.

**Low Sound Mode**

Press “CONFIRM” key for 5 seconds in temperature setting display to enable Low Sound Mode. Press “FUNCTION” and “CONFIRM” keys for 5 seconds in temperature setting display to enable Night Low Sound Mode. In Night Low Sound Mode the low sound function will only be activated during 21:00 to 6:00.

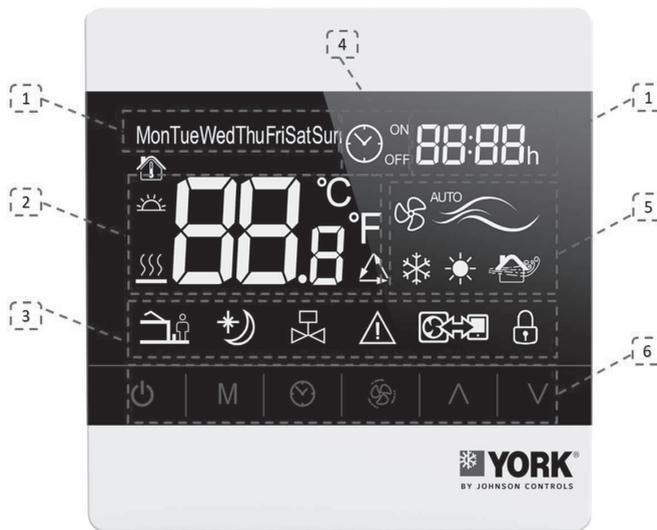
**Manual Defrost**

Press “COOLING” and “FUNCTION” keys for 5 seconds in temperature setting display to enter Manual Defrost setting. The modules can be selected by pressing “TIMER” and defrost will begin once pressing “CONFIRM”.

Press “CANCEL” to terminate this setting.

**ROOM THERMOSTAT OPERATION**

**T8610 Touch Screen Fan-Coil Floor Heating Thermostat Interface**



- Area 1: Date and time display;
- Area 2: Temperature display (include the set point and actual controlled supply air temperature)w
- Area 3: Running status display;
- Area 4: Timer display;
- Area 5: Operating mode setting;
- Area 6: Touch-keys.

**FUNCTIONS OF KEYS**

CATEGORY	KEY	MEANING	INSTRUCTIONS
Running Status Display		Leave	Display when leaving room (room with room card)
		Low Sound	Displayed in low sound mode
		Water Valve	Show water valve open
		Fault	Flashing display when fault occurs
		Communication	Display thermostat communication connection working
		Lock	Key lock status display
Operating Mode Setting		Cooling	Only Cooling
		Heating	Only Heating
		Ventilation	Display is ventilating
		Floor Heating	Turn on floor heating
		Heating+Floor Heating	Turn on air heating and floor heating at the same time
		Wind Speed	Display the air supply speed gear
Touch-Keys.		On/Off Setting	Short press this key to switch the unit on and off
		Mode Selection	Press "M" key to change the working mode, Choose cooling, heating, ventilation, floor heating and other modes
		Temperature Setting	Press either "∧" or "∨" button to increase or decrease by 0.5. "∧" is up, "∨" is down.
		Fan Speed Adjustment	<p><b>Cooling or heating mode operation:</b> T8610, has 4 speeds fan control: Auto "AUTO", High "☼", Middle "☼", Low "☼" fan. Short press the "☼" button switches through the sequence.</p> <p><b>Fan only operation:</b> T8610, has 3 speeds fan control: High "☼", Middle "☼", Low "☼" fan. Short press the "☼" button switches through the sequence.</p> <p><b>Note:</b> Fan stops at Floor Heating Mode.</p>

**Basic Operations**
**One key switch machine Settings:**

**One-Button Start:** Press any key to light up the screen, When the indoor temperature is not displayed, long press "☼" for 15S, When the indoor temperature appears, the one-button startup is completed, and the indoor and outdoor units are opened in the same mode.

**One-Click Shutdown:** Press any key to light up the screen, When the room temperature is displayed, long press "☼" for 10S. When the temperature display on the thermostat flashes, the one-key shutdown is completed, and the indoor unit and outdoor unit will shut down after 30S.

**Time Adjustment and Time-On/Off Operation:**

**Time Adjustment:** Continuously press “☺” button until "mm" in "hh:mm" blinks, then press "^" or "v" to adjust the minute. Press “☺” button again until "hh" in "hh:mm" blinks, then press "^" or "v" to adjust the hour. Press “☺” button again and adjust the weekday by the same method.

**Time-On/Off Operation:** Continuously press “☺” button until the "hh:mm", “☺”, "ON" appear, and “☺”, "ON" blink. Press either "^" or "v" key to adjust the Time-On by 30 minutes. Press “☺” button again until “☺”, "OFF" blink. Then adjust the Time- Off by the same method. Time-On/Off setting performs only once within one day.

**Time-On/Off Cancel:** Continuously press “☺” button until the "hh:mm", “☺”, "ON" appear, and “☺”, "ON" blink. Press either "^" or "v" key to adjust the Time- On "00:00". Press “☺” button again until “☺”, "OFF" blink. Then adjust the Time- Off "00:00" by the same method.

**Lock function:**

**Lock function:** If Lock function is enabled, the thermostat will be locked automatically after 30 seconds unused.

**Unlock function:** Hold down the fan key 5 seconds to unlock.

**Unoccupied mode:**

Occupied/Unoccupied mode "" is active if monitor is equipped, which is operated by entrance card.

While entrance card is pulled out, the temperature automatically set to 26°C, fan is on LO-speed if the thermostat is in cool mode; the temperature set to 18°C, fan is on LO-speed if in heat mode. Temperature Setting is invalid until the entrance card is inserted again.

**Low Temperature protection Function:**

On power Off status and when room temperature is lower than 5°C, heat function will be automatically switched on,  appears, the electrically operated valve/ hot water valve is opened, and the fan is set to HI-speed. When the room temperature reaches 7°C, the setting will be automatically canceled.

**Standby Function:**

The Thermostat will change to standby interface after 30s no pressed, and backlight become slightly bright. Quit the standby interface by pressing and key and backlight becomes normal again

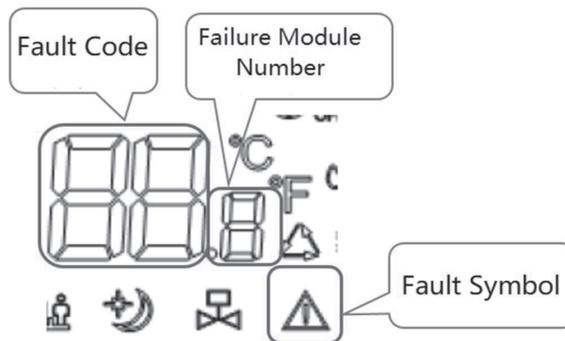
**Failure Reset:**

Press any key to make the screen light up, and hold down the mode key "M" 5S to eliminate the outdoor faults. If the fault cannot be eliminated or occurs again after elimination, please contact York service.

## Thermostat Fault Query

### T8610 Fault Diagnosis

In case of failure, the thermostat will display the corresponding failure code and failure symbol on the screen as follows.



T8610 Fault Code Icon

### Thermostat fault code

#### THERMOSTAT FAULT CODE

No	FAULT CODE	DESCRIPTION
1	1	Refrigerant inlet accumulator temperature sensor fault
2	2	Suction pressure transducer fault
3	3	Discharge temperature sensor fault
4	4	Ambient temperature sensor fault
5	5	System leaving water temperature sensor fault
6	6	System return water temperature sensor fault
7	7	Unit leaving water temperature sensor fault
8	8	Coil temperature sensor fault
9	9	Hot water return temperature sensor fault
10	10	EXV2 Valve before the temperature sensor failure
11	11	Hot water tank temperature sensor fault
12	12	High pressure sensor failure
13	33	Water flow failure
14	35	Over pressure alarm
15	37	Power failure
16	38	Hot water flow failure
17	65	Communication failure ( failure on 1# unit is between principal unit and wire controller while others for principal and subordinate unit.)
18	66	Communication failure between principal unit and BAS
19	67	Time limit protection
20	68	Excessive lower ambient temperature for cooling mode
21	69	Excessive higher ambient temperature for heating mode
22	70	Excessive lower system leaving water temperature for cooling mode
23	71	Excessive higher system leaving water temperature for heating mode
24	72	The unit is not unlocked
25	73	Communication failure between principal unit
26	74	Freezing protection in winter
27	75	Excessive lower unit leaving water temperature for cooling mode
28	77	Excessive higher unit leaving water temperature for heating mode
29	79	Excessive lower unit leaving water temperature for heating mode
30	81	Excessive higher discharge temperature
31	89	Freezing protection of BPHE
32	97	Conflict setting of unit model type
33	98	Communication failure of unit (between Microboard and driver)
34	A1	Mismatching of driver type

35	A3	Compressor driver alarm
36	A5	Excessive higher speed of fan 1
37	A6	Excessive higher speed of fan 2
38	A7	Excessive lower speed of fan 1
39	A8	Excessive lower speed of fan 2
40	C2	Microboard hardware failure
41	D2	Low suction pressure failure
42	F3	Driver hardware overcurrent
43	F4	Compressor driving failure
44	F5	Compressor overcurrent
45	F6	Reserved
46	F7	Sampling failure of compressor current
47	F8	Heat sink/IPM overheating alarm
48	F9	Pre-charge failure
49	P1	DC bus over voltage
50	P2	DC bus under voltage
51	P3	AC input under voltage
52	P4	AC input overcurrent
53	P5	Driver check out failure
54	P6	AC input hardware overcurrent
55	P7	Driver temperature sensor fault
56	P8	Excessive exhaust pressure failure
57	P9	Communication failure
58	E1	Indoor temperature sensor short circuit alarm (T8610)
59	E2	Indoor temperature sensor break alarm (T8610)
60	EE	Room thermostat hardware failure (T8610)
61	HI	Indoor temperature is higher than 55°C(T8610)
62	LO	Indoor temperature is below 0°C (T8610)

## SECTION 5 MODBUS COMMUNICATION AGREEMENT DESCRIPTION

### MODBUS COMMUNICATION AGREEMENT DESCRIPTION

DESCRIPTION	
1	MODBUS RTU Protocol; CRC: Cyclic Redundancy Check;
2	9600bps, 1 start bit, 1 stop bit, check bit-none, 8 data bits;
3	Temperature: 16-bit signed number (-32768~+32767), Read: Actual temperature= Read Values/10, Write: Input data = Setting temperature×10, Unit:℃;
4	Buffer size: 256 Bytes
5	1) The BAS Modbus addresses of subordinates are set through HMI; (HMI Set-up:8) 2) Set DIP 301-7 to "ON" to make BAS enable. 3) Set the corresponding parameters in HMI to enable and disable the BAS Start/Stop (HMI Set-up 26) and Operating Mode functions (HMI Set-up 26) . 4) BAS needs periodic (cycle less than 60s) to communicate with the motherboard to stay online
6	The Start/Stop Command (Register value = 0) is only used to start/stop the unit; Actual Start/Stop Status is accessible by reading Register value = 100.

### COMMUNICATION PROTOCOL SYSTEM REQUIREMENTS

Name	Function Code	Register Address	Note
<b>Chiller setpoint</b>			
Chiller ON/OFF	3, 6, 16	0	0-Invalid, 1-On, 2-Off
Mode Setting	3, 6, 16	1	0-Cooling, 1-Heating, 2- Cooling + Fast hot water、3- Heating + Fast hot water、4- Cooling + Normal Hot water、5- Heating + Normal Hot water、6- Fast hot water、7- Normal Hot water、8-Only Pump
Cool Return WT Setpoint	3, 6, 16	2	10~30
Heat Return WT Setpoint	3, 6, 16	3	20~50
Cool Leaving WT Setpoint	3, 6, 16	4	5~25
Heat Leaving WT Setpoint	3, 6, 16	5	20~55
Hot water tank temperature setting	3, 6, 16	6	35~60
Low Sound Mode	3, 6, 16	7	1-Enabled
Fault Reset	3, 6, 16	8	1-Enabled
Cooling Control Select	3, 6, 16	9	0-Fixed RT, 1-Fixed LT
Heating Control Select	3, 6, 16	10	0-Fixed RT, 1-Fixed LT
Temperature Control Cycle	3, 6, 16	11	20~120
Water Temp. Control Diff.	3, 6, 16	12	1~3
Hot water temperature difference	3, 6, 16	13	3~8
Backwater change rate control selection	3, 6, 16	14	0~6
<b>Chiller Status</b>			
Chiller ON/OFF	3	100	0-OFF, 1-ON
System Status	3	101	0-Cooling, 1-Heating, 2- Cooling + Fast hot water、3- Heating + Fast hot water、4- Cooling + Normal Hot water、5- Heating + Normal Hot water、6- Fast hot water、7- Normal Hot water、8-Only Pump
HMI Communication status	3	103	1-ON, 0-OFF

Unit Networks Status (1-16)	3	104	bit0-16:Unit1-16, 1-ON, 0-OFF
Unit fault status (1-16)	3	109	bit0-16:Unit1-16, 1-Fault
System Return WT	3	110	°C
System Leaving WT	3	111	°C
Hot water tank temperature	3	112	°C
Ambient Temp	3	113	°C
System Loading Rate	3	114	0~100%
Unit Networks Status (17-32)	3	121	bit0-16:unit17-32, 1-On, 0-Off
Unit fault status (17-32)	3	122	bit0-16:unit17-32, 1-Fault
Total number of modules	3	123	
Fault Code			
Fault Word 1	3	1155	Register Address Of Unit 1:1155-1162 Register Address Of Unit 2:1355-1362 Register Address Of Unit 3:1555-1562 Register Address Of Unit 4:1755-1762
Fault Word 2	3	1156	
Fault Word 3	3	1157	
Fault Word 4	3	1158	
Fault Word 5	3	1159	
Fault Word 6	3	1160	
Fault Word 7	3	1161	
Fault Word 8	3	1162	

**FAULT DEFINITIONS**

Address		Fault Name	Note
Fault Word 1	Bit0	Inlet Accumulator Temperature Sensor Fault	Bit0:1-Fault
	Bit1	Suction Pressure Transducer Fault	Bit1:1-Fault
	Bit2	Discharge Temperature Sensor Fault	Bit2:1-Fault
	Bit3	Ambient Temperature Sensor Fault	Bit3:1-Fault
	Bit4	System Leaving Water Temperature Sensor Fault	Bit4:1-Fault
	Bit5	System Return Water Temperature Sensor Fault	Bit5:1-Fault
	Bit6	Unit Leaving Water Temperature Sensor Fault	Bit6:1-Fault
	Bit7	Coil Temperature Sensor Fault	Bit7:1-Fault
	Bit8	Hot water return temperature	Bit8:1-Fault
	Bit9	EXV2 Valve front temperature	Bit9:1-Fault
	Bit10	Hot water tank temperature	Bit10:1-Fault
Bit11	High pressure sensor failure	Bit11:1-Fault	
Fault Word 2	Keep		
Fault Word 3	Bit0	Water Flow Switch Fault Or Water Pump Overload Alarm	Bit0:1-Fault
	Bit2	Over Pressure Alarm	Bit2:1-Fault
	Bit4	Power Fault	Bit4:1-Fault
	Bit5	Hot water flow failure	Bit5:1-Fault
Fault Word 4	Keep		
Fault Word 5	Bit0	Communication Failure (1# machine is host and line control, others are modules and host)	Bit0:1-Fault

	Bit3	Excessive Lower Ambient Temperature For Cooling Mode	Bit3:1-Fault
	Bit4	Excessive Higher Ambient Temperature For Heating Mode	Bit4:1-Fault
	Bit5	Excessive Lower System Leaving Water Temperature For Cooling Mode	Bit5:1-Fault
	Bit6	Excessive Higher system Leaving Water Temperature For Heating Mode	Bit6:1-Fault
	Bit7	Hot water tank temperature is too high	Bit7:1-Fault
	Bit8	Communication failure between principal unit and T8600 or BAS	Bit8:1-Fault
	Bit9	Freezing Protection In Winter	Bit9:1-Fault
	Bit10	Excessive Lower Unit Leaving Water Temperature For Cooling Mode	Bit10:1-Fault
	Bit12	Excessive Higher Unit Leaving Water Temperature For Heating Mode	Bit12:1-Fault
	Bit14	Excessive Lower Unit Leaving Water Temperature For Heating Mode	Bit14:1-Fault
Fault Word 6	Bit0	Excessive Higher Discharge Temperature	Bit0:1-Fault
	Bit8	Freezing Protection Of BPHE	Bit8:1-Fault
	Bit14	Four-way valve switching failure protection	Bit14:1-Fault
Fault Word 7	Bit0	Model conflict	Bit0:1-Fault
	Bit1	Communication Failure Of Unit (Between Mainboard And Compressor Driver)	Bit1:1-Fault
	Bit3	Mismatching Of Driver Type	Bit3:1-Fault
	Bit5	Compressor Driver Alarm	Bit5:1-Fault
	Bit7	Excessive Higher Speed Of Fan 1	Bit7:1-Fault
	Bit8	Excessive Higher Speed Of Fan 2	Bit8:1-Fault
	Bit9	Excessive Lower Speed Of Fan 1	Bit9:1-Fault
	Bit10	Excessive Lower Speed Of Fan 2	Bit10:1-Fault
	Bit13	Mainboard Hardware Fault	Bit13:1-Fault
	Bit14	Communication Failure Fan (Between Mainboard And 1#Fan Driver)	Bit14:1-Fault
Bit15	Communication Failure (Between Mainboard And 2#Fan Driver)	Bit15:1-Fault	
Fault Word 8	Keep		

**POISONOUS AND HARMFUL SUBSTANCE CONTENT TABLE UNIT**

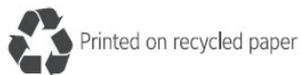
Contents Of Toxic And Harmful Substances						
Part name	Hazardous Substance Or Element					
	Pb	Hg	Cd	Cr(VI)	PBB	PBDE
Compressor	×	○	○	○	○	○
Motor	○	○	○	○	○	○
Fan	○	○	○	○	○	○
Metal Parts	○	○	○	○	○	○
Valve	×	○	○	○	○	○
Pressure Transducer	○	○	○	○	○	○
Pressure Switch	×	○	○	○	○	○
Temperature Sensor	○	○	○	○	○	○
Fastener	×	○	○	×	○	○
Controller	○	○	○	○	○	○
Electrical Control Group	○	○	○	○	○	○
Heat Exchanger	○	○	○	○	○	○
Copper Tubes	○	○	○	○	○	○
Copper Fitting	○	○	○	○	○	○
Rubber Parts	○	○	○	○	○	○
Refrigerant	○	○	○	○	○	○
Gas-liquid Separator	○	○	○	○	○	○
Aluminum Foil	○	○	○	○	○	○
Water Pump	○	○	○	○	○	○
Insulated Cotton	○	○	○	○	○	○
Soundproof Sponge	○	○	○	○	○	○
Plastic Part	○	○	○	○	○	○
Foamed Plastic Part	○	○	○	○	○	○
Printed Matter	○	○	○	○	○	○
It is based on the provisions of SJ/T11364 establishment						
○: It means the toxic and harmful substances in the parts of content in all homogeneous materials under limited requirements of GB/T26572 regulations.						
X: It means the toxic and harmful substances in the parts at least in a homogeneous material content beyond the limited requirement of GB/T26572 rules, play "x" in the form, due to technical reasons at present cannot replace, follow-up with the progress of technology will gradually improve.						
1, This product is discarded after please which is separated from the living garbage, consumers have a responsibility to be sent to the qualified collection points;						
2, Recycling center will be through the appropriate method of recycling products materials;						
3, Detailed information about recycling and disposal of this product please consult the local government, scrap processing center or local distributor;						
4, This product is not the same as the period of validity of environmental protection product safety service life.						
Suitable Model : Mini Chiller						



**Phone: +86 763 4681111**



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SUPERSEDES: NOTHING



\* Johnson Controls is committed to the continuous product improvement.  
Please note the product design may change without notification.

\*\*This manual is for reference only. For the specific product specifications and performance,  
Please refer to the purchase agreement.

SAP NO: 5839303