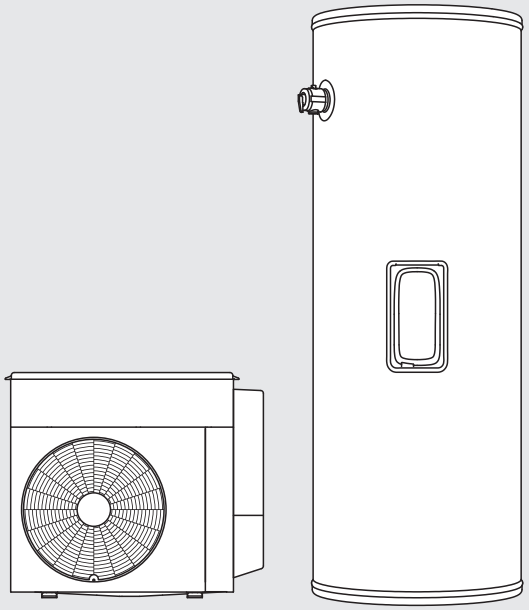
MODELS

System	Heat Pump	Tank
KSHP250M24R50	SHPR50	HPTS250VM24
KSHP250M24R50H		HPTS250VM24H
KSHP315M24R50		HPTS315VM24
KSHP315M24R50H		HPTS315VM24H



Enviroflo Split Heat Pump Hot Water System

Operation & Installation Manual

Rinnai

This appliance must be installed in accordance with:

- Manufacturer's Installation Instructions
- Current AS/NZS 3500
- Plumbing Code of Australia (PCA)
- Local Regulations and Municipal Building Codes including local OH&S requirements

These products comply with the lead-free requirements of the National Construction Code – Volume 3.

This system must be installed, commissioned, serviced, maintained and removed **ONLY** by an Authorised Person.

NOT SUITABLE AS A POOL OR SPA HEATER

For continued safety of this appliance it must be installed and maintained in accordance with the manufacturer's instructions.

Lead Free

This Appliance complies with current AS 3498
LIC.WM-00169

Certified Product

Australian Standard

AS/NZS 2712
Lic No. 1849
SAI Global

REFRIGERANT
R32

TABLE OF CONTENTS

WARNINGS AND IMPORTANT INFORMATION

SAFETY AND REGULATORY INFORMATION

DO NOT operate this system before reading the manufacturer's instructions.

This appliance must be installed, commissioned and serviced by an authorised person in accordance with all applicable local rules and regulations.

Access covers of water heating system components will expose 240V wiring and **MUST** only be removed by an authorised person.

The unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

This unit **MUST** be installed, operated and maintained in accordance with manufacturer's instructions.

Children should be supervised to ensure they **DO NOT** play with the appliance.

The Heat Pump is **NOT** equipped with a power cord and plug and **MUST** be hard-wired to an isolating switch with a dedicated circuit as per the wiring rules.

The maximum full load amperage for wiring purposes is 15 Amps. The unit is rated at 13.3 Amps (2 core and earth). The power mains supplying the unit **MUST** have a 20 Amp capacity circuit breaker fitted. The terminals to the mains power supplying the unit **MUST** be connected to an independent AC 220-240V 50Hz power supply with a 20 Amp safety switch. The isolator **MUST** effectively isolate all active supply conductors from the circuit. A method for disconnection **MUST** be incorporated into the fixed wiring in accordance with the relevant wiring rules and regulations.

In Australia, a Residual Current Circuit Breaker (RCD) **MUST** be installed to the power supply to this appliance. We always recommend an RCD is installed for the power supply to this appliance where not a mandatory requirement in some states or jurisdictions.

If the power supply cable is damaged, it **MUST** be replaced by an authorised person in order to avoid a hazard. Take care not to touch any power connections or wiring with wet hands.

Care should be taken not to touch the pipe work as it may be HOT!

DO NOT place articles on or against this appliance.

DO NOT store chemicals or flammable materials near this appliance.

DO NOT operate with collectors or covers removed from this appliance.

DO NOT activate heat pump unless tank is full of water.

NEVER use flammable sprays such as hairspray, paint, etc near the unit as this may cause a fire.

The unit uses R32 refrigerant, which is a flammable gas class 2L according to AS 5149 and **MUST** be handled by a refrigeration mechanic with appropriate Australian refrigerant handling licence.

WARNING Risk of fire / flammable material. If the refrigerant is leaked, together with an external ignition source, there is a possibility of ignition.

MANDATORY INSPECTION PRIOR TO INSTALLATION

Immediately report any damage or discrepancies to the Supplier of the appliance. This appliance was inspected and tested at the time of manufacture and packaging, and released for transportation without known damage. Upon receipt, inspect the exterior for evidence of rough handling in shipment. Ensure that the appliance is labelled correctly for the gas and electrical supply, and/or other services it is intended to be connected to.

For safety and warranty purposes, appliances that may be damaged or incorrect must not be installed or operated under any circumstances. Installation of damaged or incorrect appliances may contravene local government regulations. Rinnai disclaims any liability or responsibility whatsoever in relation to the installation or operation of damaged or incorrect appliances.

NOTICE TO VICTORIAN CONSUMERS

This appliance must be installed by a person licensed with the Victorian Building Authority.
Only a licensed person will have insurance protecting their workmanship.
So make sure you use a licensed person to install this appliance and ask for your Compliance Certificate.
For further information contact the Victorian Building Authority on 1300 815 127

TRANSPORT AND STORAGE OF APPLIANCE

RISK OF FIRE

The refrigerant used in the heat pump is a flammable gas.

The appliance(s) MUST be stored and transported in an area without ignition sources (for example: open flames, an operating gas appliance or an operating electric heater)

DO NOT pierce or burn the appliance.

Be aware that refrigerants may not contain an odour.

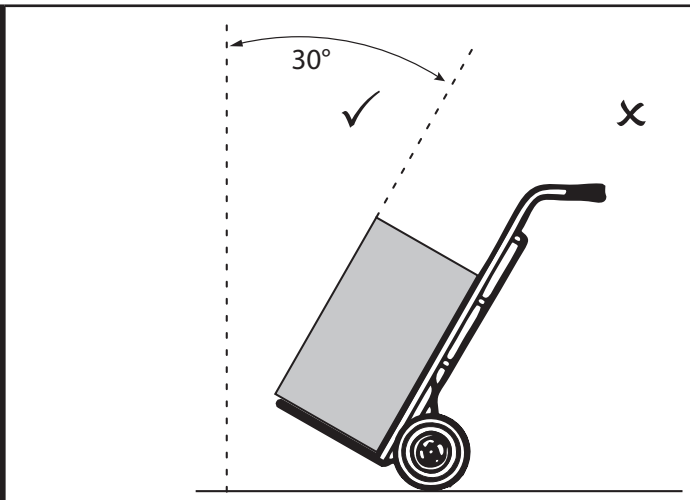
Compliance with AS/NZS 5149 MUST be observed while storing the appliance.

IMPORTANT

National and state regulations exist for storage, handling and transport of hazardous goods including flammable gasses. The maximum number of pieces of equipment or the configuration of the equipment, permitted to be transported or stored together will be determined by the applicable regulations.

IMPORTANT

DO NOT TILT MORE THAN 30° FROM VERTICAL



The Heat Pump unit must be transported at an angle no greater that 30º from vertical. As the compressor unit is located at the top of the electric heat pump, tilting at a greater angle will allow compressor lubrication oil to run down into the mufflers. This will leave the compressor motor with insufficient lubrication leading to premature failure of the compressor.

It is good practice to keep the compressor upright as much as possible to these risks. Returning the Rinnai Electric Heat Pump to a vertical position will not allow the oil to properly flow back into the compressor motor.

Tilting the unit beyond 30º from vertical will also place strain on compressor motor mounts and associated piping.

WARNING

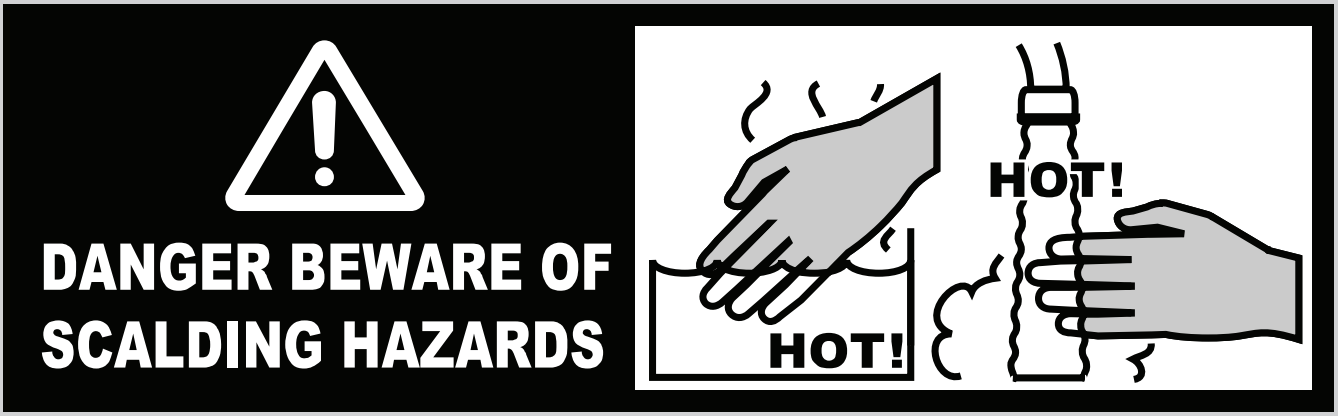
Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance MUST be stored in a room without continuously operating ignition sources. For example, open flames, an operating gas appliance or an operating electric heater.

Do not pierce or burn.

Be aware that refrigerants may not contain an odour.

SCALD HAZARDS



HOT WATER CAN CAUSE SCALDS.

CHILDREN, DISABLED, ELDERLY AND THE INFIRM ARE AT THE HIGHEST RISK OF BEING SCALDED.

FEEL WATER TEMPERATURE BEFORE BATHING OR SHOWERING.

SCALDS FROM HOT WATER TAPS CAN RESULT IN SEVERE INJURIES TO YOUNG CHILDREN.

SCALDS OCCUR WHEN CHILDREN ARE EXPOSED DIRECTLY TO HOT WATER WHEN THEY ARE PLACED INTO A BATH WHICH IS TOO HOT.

ALWAYS.....

Test the temperature of the water with your elbow before placing your child in the bath, also carefully feel water before bathing or showering yourself.

Supervise children whenever they are in the bathroom.

Make sure that the hot water tap is turned off tightly.

CONSIDER.....

Installing child proof tap covers or child resistant taps (both approaches will prevent a small hand being able to turn on the tap).

Installing tempering valves or thermostatic mixing valves which reduce the hot water temperature delivered to the taps. Your local plumbing authority may already require that these be fitted. Contact your installer or local plumbing authority if in doubt.

NEVER....

Leave a toddler in the care of another child. They may not understand the need to have the water temperature set at a safe level.

Tank Thermostat Limit Temperature

WARNING

The tank thermostat limit temperature must only be adjusted by an electrician or other suitably qualified person. The access cover to the element and thermostat MUST only be removed by an electrican or other suitably qualified person.

SAFETY DEVICES

The water heating system is supplied with various safety devices including temperature sensors, overheat sensors and switches and a Pressure & Temperature Relief (PTR) valve. These devices must not be tampered with or removed. The water heating system must not be operated unless each of these devices is fitted and operational.

WARNING

DO NOT tamper with or remove safety devices.

DO NOT operate the water heater unless all safety devices are fitted and in working order.

DO NOT block or seal the PTR Valve and drain pipe.

Pressure & Temperature Relief (PTR) Valve

The PTR is located near the top of the Tank and is essential for safety.

WARNING

NEVER block or seal the outlet of the PTR valve or it's drain line for any reason. The easing gear MUST be operated at least every 6 months to remove lime deposits and verify that it is not blocked. Failure to do this may result in the water heater failing.

If the valve does not discharge water when the easing gear lever is opened, or does not seal again when the easing gear is closed, attendance by an authorised person MUST be arranged without delay. The PTR valve is not serviceable.

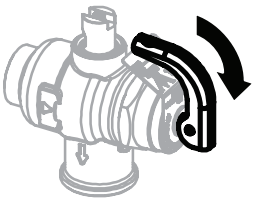
EXCESSIVE DISCHARGE FROM SAFETY DEVICES

Pressure & Temperature Relief (PTR) Valve

It is normal and desirable that thevalve allows a small quantity of water to be discharged during the heating cycle. If more than a bucket of water is discharged in a 24 hours or discharges continuously there may be another problem.

If the valve leaks continuously, try easing the valve gear for a few seconds. This may dislodge any foreign matter and alleviate the problem.

If the valve discharges at high flows, especially at night, it may be as a result of the water pressure exceeding the rated pressure of the water heater and PTR valve. Ask your installer to fit a Pressure Limiting Valve (PLV).



Lift lever until water flows from drain line (Lower lever gently!)

WARNING

NEVER replace the PTR valve with one which has a higher pressure rating than is specified for your water heater.

Expansion Control Valve (ECV) - if required

It is normal that this valve allows a small quantity of water to be discharged during the heating cycle. If it discharges more than a bucket of water during a 24 hour period or discharges continuously there may be another problem.

If the valve leaks continuously, try easing the valve gear for a few seconds. This may dislodge any foreign matter and alleviate the problem. If this does not alleviate the problem contact Rinnai.

Operate the easing gear regularly to remove any lime deposits and to verify that it is not blocked.

ANODE

The water heater is fitted with a sacrificial anode to extend it's life. It will slowly dissipate whilst protecting the cylinder. The life of the water heater may be extended by having an authorised person inspect the anode and replace it if required. It is recommended that the anode be inspected at least every 5 years, and replaced when depleted. The factory fitted Rinnai anode is Magnesium based and is suitable when the total dissolved solids (TDS) content in the water supply does not exceed 600 mg/L, which is the case in most areas. In areas where the TDS content in the water supply exceeds 600 mg/L, an Rinnai Aluminium based anode is required.

HYDROGEN GAS

If the hot water unit is not used for two weeks or more, a quantity of hydrogen gas, which is highly flammable, may accumulate in the water heater. To dissipate this safely, it is recommended that a non electrically operated hot tap be turned on for two minutes at a sink, basin, or bath, but not a dishwasher or other appliance. During this procedure there must be no smoking, open flame or any electrical appliance operating nearby. If hydrogen is discharged through the tap, it will probably make a sound like air escaping.

TURNING THE WATER HEATING SYSTEM OFF AND ON

Turning Off the Water Heating System

If you plan to be away for 7 to 15 nights, we suggest setting the unit to Vacation Mode as described on page 10.

If you plan to be away for more than 15 nights, it is necessary to switch off the water heater, as outlined below:

DO NOT turn power off to the heat pump unit if snow or frost conditions are expected as components in the system may be damaged by freezing. If power needs to be turned off or power failure occurs and freezing conditions are expected, the water needs to be drained from the heat pump unit. Follow the procedure described below in the section below.

Turning On the Water Heating System

Switch on the electric supply to the heat pump unit. Water heating will now occur as required. It may take a number of hours before hot water is available.

DRAINING AND FILLING

Draining or filling of the complete system normally only occurs during installation or servicing and **MUST** be carried out by an authorised person.

To drain the heat pump:

1. Turn off power to the heat pump.
2. Close the cold water mains supply stop cock.
3. Open a hot tap to relieve pressure.
4. Disconnect the hot outlet near the top of the tank.
5. Disconnect the cold inlet near the bottom of the tank.
6. Disconnect the Heat Pump water outlet.
7. Disconnect the Heat Pump water inlet.
8. The system will now drain completely.

MAINTENANCE AND REGULAR CARE

Operate the easing gear of the PTR and the ECV if fitted as described in the section ‘Safety Devices’ on page 7.

The overflow tray (supplied by installer) and drain underneath the tank (if fitted) should be periodically checked to ensure there are no blockages.

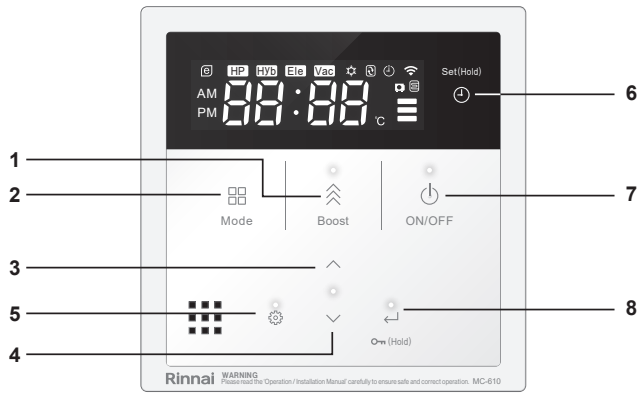
OPERATING THE UNIT

Operating Principle

A heat pump transfers heat from the ambient air into the water. Electricity is used to operate the system, but not to directly heat the water. The warmer the climate, the more efficient this is.

When ambient condtions are not suitable for the heat pump to operate, change the mode with the Mode Button. If there is a fault, the mode will be set to **Ele** on the controller and heating will continue with the electric element only.

CONTROLLER OVERVIEW

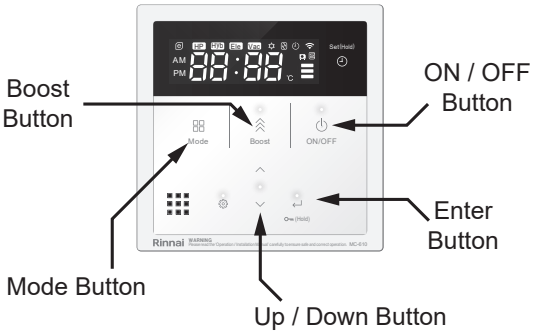


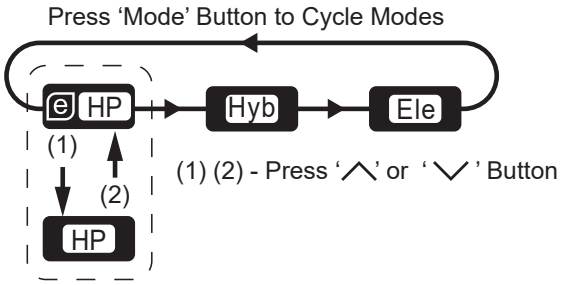
1	Boost Button
2	Mode Button
3	Up Button
4	Down Button
5	Settings Button
6	Time-Set / Display-Change Button
7	ON/OFF Button
8	Enter / Child-Lock Button

Display	Description	Display	Description
AM PM 88:88	Time/Temperature Set / Function		Heat Pump Turn On
HP Hyb Ele	Operation Mode (Heat Pump/Hybrid/Element)		Element Turn On
e	Eco Mark (Heat Pump 55˚C only)		Operation Timer is Set
Vac	Vacation Mode		Wi-Fi Connection
	Anti-Freezing		Storage Volume 100% Upper Tank Sensor ≥45°C and Bottom Tank Sensor ≥40°C
	Thermal Sterilisation (automatic function)		Storage Volume 66% Upper Tank Sensor ≥45°C and Bottom Tank Sensor <40°C
		Storage Volume OFF	When ON/OFF lamp is ON but Upper Tank Sensor reads < 45°C the Controller will beep and storage volume display will disappear. This means there is no hot water'.

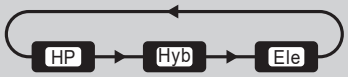
OPERATING MODES

There are four indicators, **eHP, HP, Hyb and Ele** on the display and remote control which indicates current mode. To select the three available operation modes **HP, Hyb and Ele** described below, press the Mode Button until the desired mode is illuminated. For commercial installation select the **HP** mode and adjust the temperature set point to 65°C.





When heat pump is set to 'Quiet operation', (see "Changing Settings" on page 29) 'Economy Mode' can no longer be selected. When pressing the 'Mode' button on the remote controller the available options will cycle through HP, Hyb and Ele Modes.



	Icon	Operation Mode	Description
Display / Remote Controller	HP	Heat Pump	Heats water to 55 / 60 / 65°C using Heat Pump system only
	e HP	Economy	Economically uses Heat Pump to Heat water to 55°C (factory default).
	Hyb	Hybrid	Heats water to 55 / 60°C using the Heat Pump then to 60 / 65°C using the Heating Element.
	Ele	Element	Heats water to 55 / 60 / 65°C using the Heating Element only
	Boost	Boost	Heats water rapidly to Set temp using a combination of the Heat Pump and the heating element. When boost is finished the Heat Pump will return to the mode it was before.
			When 100% of storage volume is filled with hot water, "Boost Mode" will finish. This will be indicated by a melody and the "Boost" lamp turning off.

LOCK FUNCTION

Button operation can be disabled to prevent undesired operation (Turning off the unit via the ON/OFF Button and control via the App will remain available).

1. Press and hold the Enter Button ↵ for more than 3 seconds. Buttons will now be locked.
2. To cancel the lock function press and hold the Enter Button ↵ again for more than 3 seconds.

Button functions will be disabled. If buttons are pushed the Enter Button will flash to indicate Lock is activated.

TIMER MODE

1. Press the Setting Button on the Remote controller, and display "OF". "OF" is default setting.
2. Press the up ∧ or down ∨ Button and select timer.

Timer setting is below

Setting Number	Value	Description	Default
01 (Timer)	OF	Ready to heat always 24hr / 7 days	Y
	1	Off Peak 1 (10pm to 7am, 9hrs)	
	2	Off Peak 2 (12pm to 6pm, 6hrs)	
	3	Solar PV (10am to 4pm, 6hrs)	
	4	Custom (for App use) Factory default setting 2am to 9pm, 19hrs	

Heat pump and elements will be ON during the times listed in the table.
Once set, it will run on that timer unless changed.

3. Press Enter Button twice (once if no changes are made) or leave 1 minute to return display to normal.

VACATION MODE

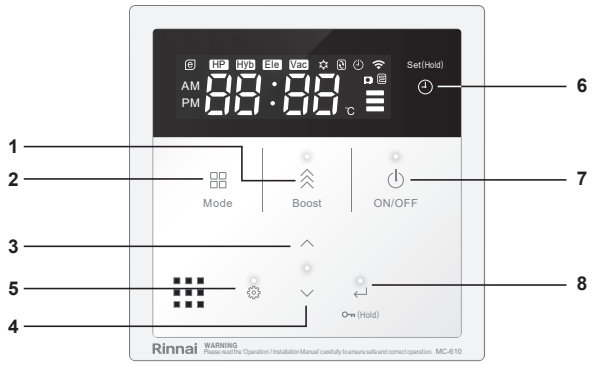
If you plan to be away for up to 15 nights, we suggest you set the system to Vacation Mode.

1. Press the On / Off Button to turn the Controller on.
2. Press and hold the Mode Button for more than 1 second. The Vacation Mode setting menu will be displayed.
3. Press Up/Down Button to select the system stop duration (Between 1 and 15 days), and press Enter ↵.
4. During the Vacation Mode normal heating stops and anti-freezing protection will activate if necessary.
5. Press the On / Off Button to cancel Vacation Mode.

If Vacation Mode is not selected Anti-Freezing function will continue to operate and water will be heated at the controller temperature setting regardless of the timer setting.

If the time has not been set, Vacation Mode is not available. (see "Time Setting" on page 11)

TIME SETTING



1	Boost Button
2	Mode Button
3	Up Button
4	Down Button
5	Settings Button
6	Time-Set / Display-Change Button
7	ON/OFF Button
8	Enter / Child-Lock Button

Connecting Wi-Fi (see “Wi-Fi” on page 32), will set the time automatically. To set time manually:

Press and hold Set(Hold) Button for 3 seconds until display changes.

The clock digits will light up.

Press the up ^ or down v Button to select Year → Month → Day → Time.

Display shows the year in four digits eg: 2025 ,

Press the up ^ or down v Button to select the desired year and press Enter Button to move on to month.

Display shows month in three digits* eg: dEC ,

January JAn
February FEb
March MAr
April APr
May MAY
June JUn
July JUL
August AUG
September SEP
October OCt
November nOv
December dEC

Press the up ^ or down v Button to select the desired month and press Enter Button to move on to day.

Display shows day in two digits. eg: 6,

Press the up ^ or down v Button to select the desired day and press Enter Button to set time.

Display shows time in 12 hour format. eg: AM 10:30.

Press the up ^ or down v Button to select the desired time.

Holding the up ^ or down v Button down continuously cycles the digits.

When you get close to the desired time, press the button intermittently to avoid going further.

To return to normal operation press the Enter Button ↵ once.

The second is not shown on the display, but when you press ↵ the second will be zeroed.

NOTE **If a button is not pressed for about 60 seconds while setting, the time will set automatically.**

SAVE A SERVICE CALL

Rinnai's servicing network personnel are fully trained and equipped to give the best service on your Rinnai appliance. If your appliance needs service, ring one of the service contact numbers on the back of this booklet.

The pressure and temperature relief valve and expansion control valve (if fitted) must be replaced by an authorised person at intervals not exceeding 5 years or more frequently in areas where the water is classified as scaling water.

If the power supply cord to the heat pump unit is damaged, they must be replaced by an authorised person in order to avoid a hazard.

Use the following guide to avoid the need for an unnecessary service call.

INSUFFICIENT OR NO HOT WATER	
Heat Pump Unit Not Powered	Check to ensure the electric isolating switch at the switchboard (usually marked 'Hot water' or 'Water heater' is turned on. (note that the compressor will not start up for 2 minutes after re-starting).
Excessive hot water consumption	Often end users are surprised at the amount of hot water used, especially when showering. If the amount of hot water used during the day exceeds the storage capacity of the tank, it is likely there will be insufficient hot water.
Pressure & Temperature Relief (PTR) Valve continually discharging water	It is normal and desirable that this valve allows a small quantity of water to be discharged during the heating cycle. If it discharges more than a bucket of water during a 24 hour period or discharges continuously there may be another problem. If the valve leaks continuously, try easing the valve gear for a few seconds as described in the section 'Excessive Discharge from Safety Devices' on page 7. This may dislodge any foreign matter and alleviate the problem. If the valve discharges at high flows, especially at night, it may be as a result of the water pressure exceeding the design pressure of the water heater. Ask your installer to fit a Pressure Limiting Valve (PLV).
Expansion Control Valve (ECV) continually discharging water	It is normal and desirable that this valve allows a small quantity of water to be discharged during the heating cycle. If it discharges more than a bucket of water during a 24 hour period or discharges continuously there may be another problem. If the valve leaks continuously, try easing the valve gear for a few seconds as described in the section 'Excessive Discharge from Safety Devices' on page 7. This may dislodge any foreign matter and alleviate the problem. If this does not alleviate the problem contact Rinnai.
Ambient conditions too hot	To protect the components of the heat pump unit it may not operate when the ambient temperature is higher than 45°C. Set the system Operation Mode to "HYB".
Ambient conditions too cold	To protect the components of the heat pump unit it may not operate when the ambient temperature is less than -10°C. When the ambient temperature is less than 1°C set the system Operation Mode to "HYB" .
NO WATER FROM THE TAP	
Restriction in the hot tap or failure of the cold water supply to the water heater	Check for water flow at the other taps and that the cold water isolation valve is fully open.

HIGH ELECTRICITY BILLS	
Excessive hot water consumption	See entry under the heading ‘Insufficient or no hot water’
High Electricity Tariffs	The electricity tariff will determine the running costs of the system. It is important the end user is aware of the applicable tariffs. Contact your electricity supplier to confirm what these tariffs are.
Higher Element Usage	In extremely cold conditions the element may be operating more than normal.
WATER FLOW FLUCTUATIONS	
Multiple hot taps opened at the same time	More than one or two hot taps in use at the same time may cause a decrease in the hot water flow from the taps. Is there more than one or two hot taps open, or are appliances such as a dishwasher or washing machine, in use at the same time? Ensure only one or two hot taps are on at one time.
WATER HAMMER	
Hot and cold water plumbing in the premises	Have a plumber check clipping of hot and cold water pipe work and install a pressure limiting valve and water hammer arrestor as required.
HEAT PUMP ICES UP	
Defrosting function	The heat pump has a built in hot bypass defrosting function which may operate and remove any ice. The fan does not run during the defrosting process.
HEAT PUMP ERROR INDICATOR	
Flash code indicator is flashing on the Display & Control Panel	This will flash if an error is detected with the heat pump operation, please call Rinnai for assistance if this should occur. Refer to ‘Controller LED Flashing Codes’ on page 30 for further explanation of error codes.

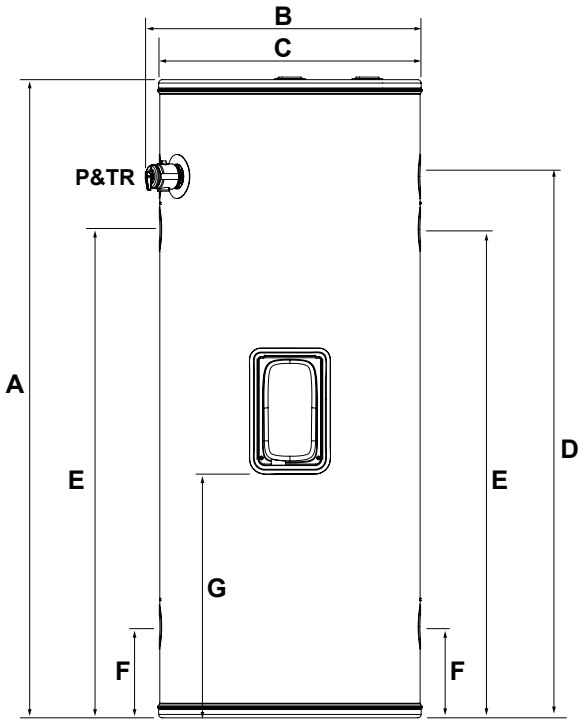
SPECIFICATIONS

SYSTEM SPECIFICATIONS (KSHP250M24R50 & KSHP315M24R50)

Model		SHPR50 (Heat Pump Unit)
Net Weight / Filled Weight		28kg / 34kg
Sound Level / Quiet Operation Sound Level		48 dB(A) / 45 dB(A)
Ambient Temperature Limits (for heat pump operation - element will operate beyond these limits)		-10°C to 45°C
Ingress Protection		IPX5
Storage Cylinder - Hot Outlet and Cold inlet Connections		ISO 7.1 ¾" RP
Storage Cylinder - PTR Valve Connection		ISO 7.1 ½" RP
Pressure & Temperature Relief (PTR) Valve (Supplied) Setting / Rating		1000 kPa / 10kW
ECV Fitted	Fit PLV if mains pressure exceeds	680 kPa
	Recommended PLV pressure rating	150 to 500 kPa
ECV Not Fitted	Fit PLV if mains pressure exceeds	800 kPa
	Recommended PLV pressure rating	150 to 500 kPa
Cold Water Supply Temperature Limits		5°C to 40°C
Rated Input Electric Element (Factory Wired)		2.0kW @ 220V / 2.4 kW @ 240V
Rated Input Refrigeration Module (Factory Wired)		0.9 kW
Total Rated Input (To be wired by installer)		2.9kW
Maximum Energy Output (Use to size PTR)		7.4 kW
Power Supply		220-240V AC, 50 Hz. (20 Amp Isolating switch is required in close proximity to the Heat Pump).
Rated Current		13.3 A (A Dedicated 20 Amp Safety Switch must be installed in the switchboard for the Heat Pump unit).
Refrigerant Type		R32
Refrigerant Charge		365g
Refrigerant Circuit Maximum Pressure		4300 kPa
Start-up Protection		When restarting, the unit will not start for 2 minutes to protect the compressor.
Defrosting Function		When the Outdoor Fan Coil (Evaporator)unit temperature reaches 0°C, the hot discharge bypass defrosting mode will operate for up to 15 minutes or until the evaporator temperature reaches 3°C. The fan will continue to operate during the defrosting process.
Protection Systems		Heat pump has protection systems that will stop unit operation if: • Over temperature (111°C) in the refrigerant system • Suction pressure drops due to refrigerant charge loss or air flow blockage is detected by over temperature
Coefficient Of Performance (COP)	32°C Ambient 18°C cold water inlet	5.5
Heat Output	32°C Ambient 18°C cold water inlet	5.0 kW

DIMENSIONS

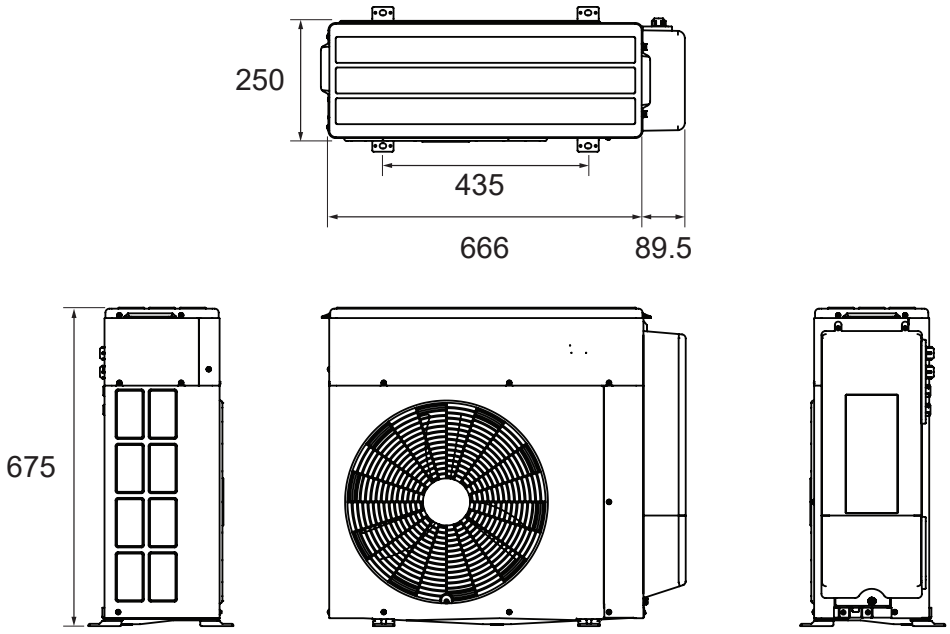
Tank



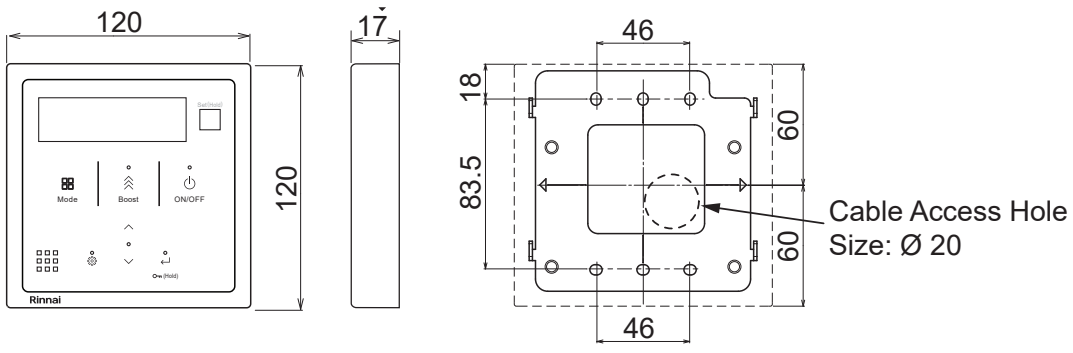
No	Dimension	Tank Model	
		HPT250VM	HPT315VM
A	Tank Height	1477	1770
B	Width	674	674
C	Tank Diameter	605	605
D	Hot Water Outlet	1248	1541
E	Heat Pump Hot Water Inlet	1126	1419
F	Cold Water Inlet/ Cold Supply to Heat Pump	210	210
G	Bottom of Electric Cover	332	332
Tank Weights (kg)			
Net Weight (kg)		66	77
Filled Weight (kg)		341	413

All dimensions are in mm unless otherwise stated

Heat Pump



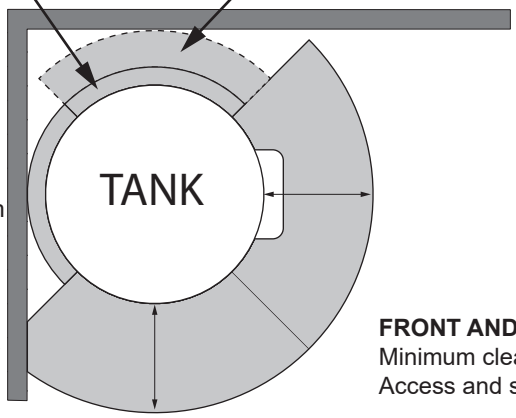
Remote Controller



CLEARANCES

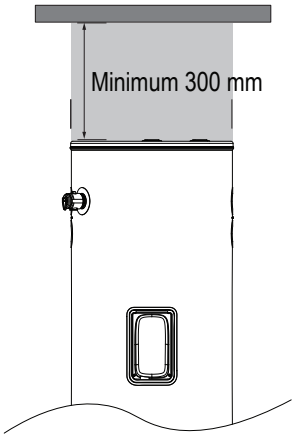
Tank

RIGHT-HAND SIDE OF TANK
Minimum clearance: 50 mm When NO WATER connections are used.
Minimum clearance 150 mm When water connections are used.



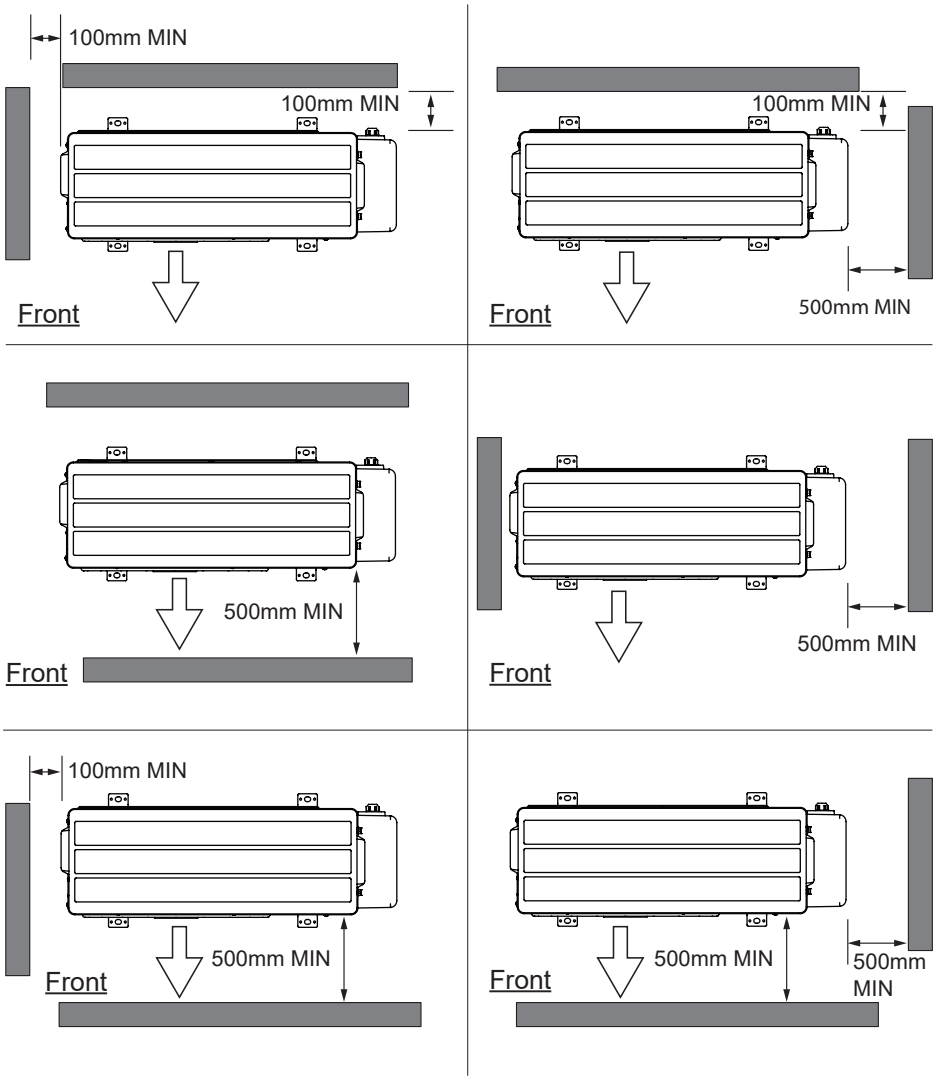
REAR OF TANK
Minimum
clearance: 50 mm

FRONT AND LEFT-HAND SIDE
Minimum clearance: 300 mm
Access and servicing



Heat Pump

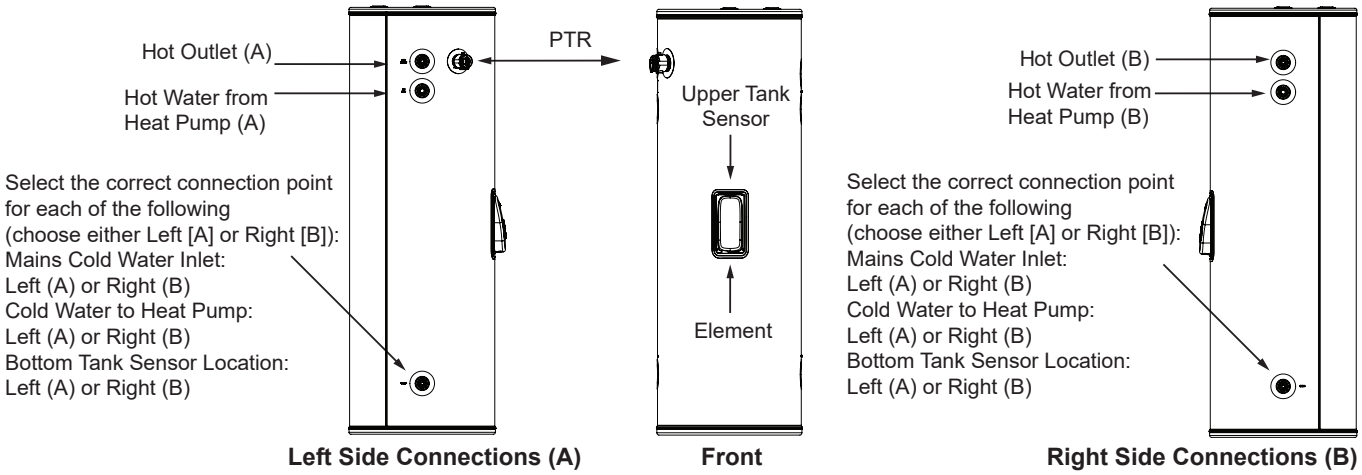
Allow 500mm on the fan discharge side and 100 mm clearance on the fan suction side to allow for sufficient air flow through the fan. All measurements outlined below are minimums.



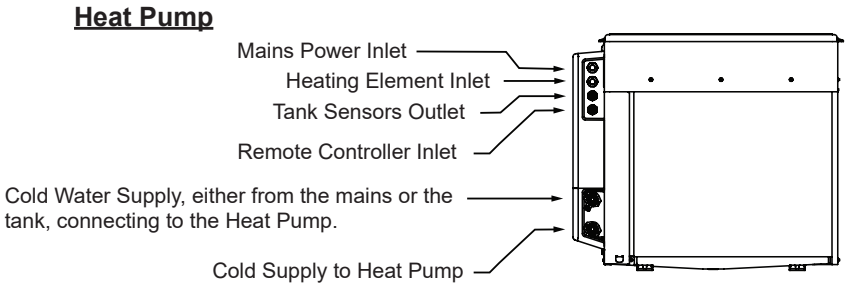
CONNECTIONS

The Tank is supplied with duplicate connections on either side so that the Heat Pump unit can be located on the Left (A) or Right (B) side of the tank more easily as required.

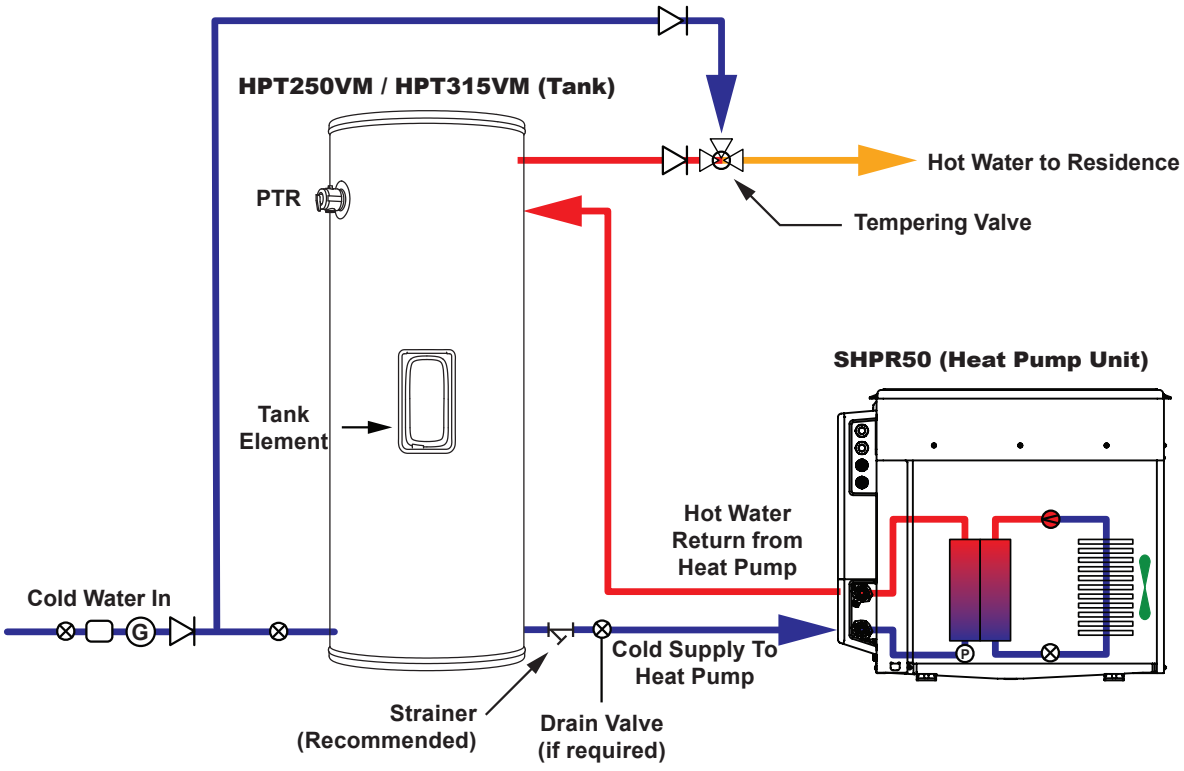
Tank



Heat Pump



SYSTEM SCHEMATIC



INSTALLATION

REGULATIONS AND OCCUPATION HEALTH AND SAFETY (OH&S)

Installation and commissioning MUST be performed by authorised persons.

The Heat Pump MUST be installed in accordance with these instructions and all regulatory requirements which exist in your area including those in relation to manual lifting.

Applicable publications and regulations may include:

- **AS/NZS 3500 National Plumbing and Drainage**
- **AS/NZS 3000 Wiring Rules**
- **Building Codes of Australia (BCA)**
- **Local Occupational Health and Safety (OH&S) regulations**

This appliance is not suitable for use as a domestic spa pool or swimming pool heater.

Electric Heat Pumps are heavy and bulky items. Australian States and Territories have a Principal Occupational Health and Safety (OH&S) Act which contains requirements for handling of large, bulky or awkward items. Persons installing Heat Pump systems MUST be qualified, aware of their responsibilities and be adequately trained, in accordance with local OH&S requirements.

LOCATION

The electric Heat Pump **MUST** only be installed externally and **MUST** be connected to an independent AC 220-240 V, 50 Hz power supply.

The electric Heat Pump should be placed as close as practicable to the most frequently used hot water outlet points to reduce hot water delivery times, typically the kitchen tap. Where the distance between the Heat Pump and the outlets is large, a flow and return system can be used to minimise the waiting time for hot water delivery.

It is recommended that all components are installed at ground or floor level. The Heat Pump **MUST** be installed in a vertically upright position. All components **MUST** be accessible without the use of a ladder or scaffold. The unit **MUST NOT** be installed in roof spaces.

As the Heat Pump contains a flammable refrigerant, ensure the installation location complies with the requirements of AS/NZS 60335.2.40 & AS / NZS 5149.

WARNING Risk of fire / flammable material. If the refrigerant is leaked, together with an external ignition source, there is a possibility of ignition.

Read the OPERATING INSTRUCTIONS carefully before operation.

Service personnel are required to carefully read the OPERATING INSTRUCTIONS and INSTALLATION MANUAL before operation.

Ensure the area has been made safe with suitable ventilation and no ignition sources before charging or releasing the charge of R32.

R32 as well as other refrigerants should always be recovered and never released.

The air inlet and outlet of the Heat Pump module **MUST** be away from areas with strong wind and **MUST** be provided with sufficient clearances as per those shown in section ‘Clearances’ on page 16.

Ensure the pressure and temperature pressure relief (PTR) valve and any access covers have sufficient clearances and are accessible for service and removal. The information on the rating plates **MUST** also be readable.

The Heat Pump **MUST** be installed free-standing on a level and stable base. The Tank should be mounted on a minimum concrete base at least 50mm thick or on well-seasoned, evenly spread hardwood slats with a thickness of at least 25mm.

DRAINAGE

As this Heat Pump is highly efficient the surrounding air temperature could be cooled by up to 4°C and condensate formed which needs to plumbed to a suitable drain. Where property damage can occur as a result of water leakage, the water heater **MUST** be installed with a safe tray (overflow tray) and drain. Construction, installation and draining of the safe tray **MUST** comply with local regulatory requirements and. AS/NZS 3500.4 also requires the use of a safe tray for particular situations. Ensure the Tank **DOES NOT** stand on wet surfaces.

WATER SUPPLY

This appliance is intended to be permanently connected to the water mains and not to be connected by a hose set.

Maximum water pressure is listed on page 14. An approved pressure limiting valve may be required if this rated water supply pressure is exceeded. Cold Water Supply Temperature Limits are listed on page 14.

Water chemistry and impurity limits are detailed in the separate warranty document. Most metropolitan water supplies fall within these requirements. If you are unsure about water quality, contact your water authority.

A water filter **MUST** be fitted on the inlet to the Tank to prevent sludge or foreign matter entering the system.

In some water supplies, calcium carbonate and other compounds are deposited out of the water onto any hot metallic surface forming a scale. Such deposits may form onto the metallic surfaces of the PTR valve and prevent it from operating properly. To prevent this, an expansion control valve (ECV) **MUST** be fitted on the cold water line after the non-return valve in areas of scaling water. ECVs' **MUST** be fitted in South Australia and Western Australia to comply with local regulations.

Tank Thermostat Limit Temperature

The tank thermostat can be adjusted by an electrician or other suitably qualified person to a limit of between 60°C and 70°C. It is factory pre-set to a limit of 70°C which is suitable for the majority of applications. Adjustment is not recommended.

STORAGE TEMPERATURE

To meet regulatory requirements the thermostat control on the Heat Pump water heater is factory pre-set to heat the water in the Tank to 60°C once a week. This cannot be altered.

HOT WATER DELIVERY TEMPERATURE

This appliance may deliver water at high temperature. Refer to the Plumbing Code of Australia (PCA), local requirements and installation instructions to determine if additional delivery temperature control is required.

The PCA, local regulations and the requirements of AS/NZS 3500.4 **MUST** be considered regarding the temperature limitations of hot water supplied to areas used primarily for personal hygiene.

The water temperature limit in installations differs according to purpose. For example, childcare centres, schools and nursing homes or similar facilities might be set lower compared to other buildings. To comply with these requirements, a temperature limiting device, such as a thermostatic mixing or tempering valve, is required on hot water systems.

VALVES AND FITTINGS

The following valves and Fittings are supplied with the hot water system:

- A combined pressure and temperature (PTR) relief valve, capacity 10 kW is supplied with the Tank. This valve is fitted at the top of the Tank. The PTR valve is a safety device and it is mandatory that it is fitted by the installer in all installations.
- A combined tee and nipple and sensor dry well is supplied with the tank. These are fitted to the Cold Supply to Heat Pump Port at the bottom of the Tank.
- 3 adapters Supplied with the tank fitted at the Cold inlet / Hot outlet / Heat Pump return ports.
- A combined Plug and Cover supplied with the Tank. Fitted at the top of the unit for unused connection ports.

The following valves & fittings are to be supplied by the installer:

- A cold water expansion control valve (ECV). To comply with local regulations, an ECV **MUST** be fitted in Western Australia and South Australia to the cold water supply to the Tank. An ECV is also recommended in all areas with scaling water. This will reduce hot water discharge from the pressure and temperature relief (PTR) valve which minimises wear on this valve.
- A stop cock, non return valve and line strainer. Combination valves incorporating two or more of these functions (such as 'Trio' valves) are suitable. These are fitted to the Tank by the installer.
- Cold water supply and hot water discharge pipework to and from the Tank. This pipework **MUST** be insulated as specified in AS/NZS3500.4.
- An approved pressure limiting valve (supplied with some systems) is required if the maximum rated water supply pressure on page 14 is exceeded.
- Tempering valve(s) or thermostatic mixing valve.
- It is highly recommended to install an in-line strainer in the cold water supply to heat pump.

TRANSPORT AND HANDLING

IMPORTANT

When moving the unit, it MUST be close to vertical at all times.
When using a trolley to move the unit, ensure it is not tilted more than 30° from the vertical.
Non compliance will void warranty and severely affect product performance and operation.

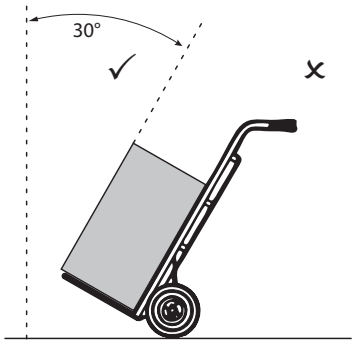
The Rinnai Enviroflo Electric Heat Pump **MUST** be transported at an angle no greater that 30º from vertical.

If the Heat Pump be tilted at a greater angle than 30º from vertical, the lubrication oil within the compressor can run down into the mufflers.

This will leave the compressor motor without sufficient lubrication and lead to premature failure of the compressor unit.

Keep the compressor upright as much as possible to avoid any risks. Returning the Heat Pump to a vertical position will not allow the oil to properly flow back into the compressor motor.

Tilting the Heat Pump beyond 30º from vertical will also place undue strain on compressor motor mounts and associated piping.



Never tilt unit more than 30˚ from vertical

POSITIONING THE HEAT PUMP

Arrive at site and conduct a safety audit (Safety audits can also be known as Work Method Statements (WMS) or Job Site Analysis (JSA).

Park vehicle close as allowable to installation. Unload all materials safely. and position them in a convenient position near the work area.

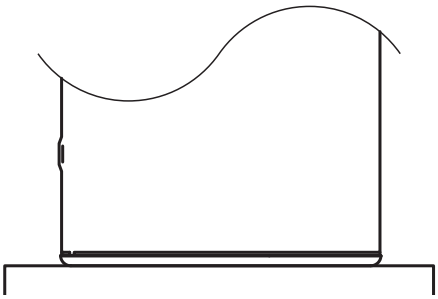
Heat Pump **MUST** be installed outdoors, preferably on a north facing aspect (see diagram below).

The location **MUST** consider noise impact on living areas. Avoid positioning near bedrooms or neighbours' bedrooms. Although the running noise level is very low, the Heat Pump will run during the night.

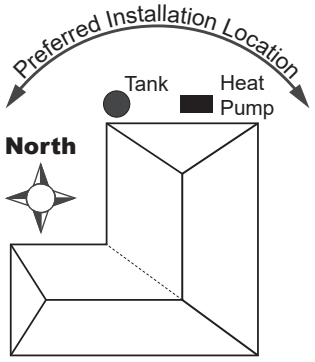
Adequate access **MUST** be available to the relief valve and anode.

Safely position the unit on a level surface in accordance with all plumbing and building regulations.

A properly drained overflow tray **MUST** be used where property damage could occur from water spillage. (See AS/NZS3500.4.2 for further details.)



Install a plinth under the Heat Pump where subjected to wet conditions



NOTE

DO NOT drain on to grass or garden beds.
DO NOT start a job where the risks cannot be controlled.

Allow 200m³ of free space around Heat Pump for clear ambient airflow to assist performance. Ensure clearance requirements on Page 16. are met. The area **MUST** be clear of debris such as leaves and branches.

PIPING CONSTRAINTS

Pipes must have no more than 6 bends

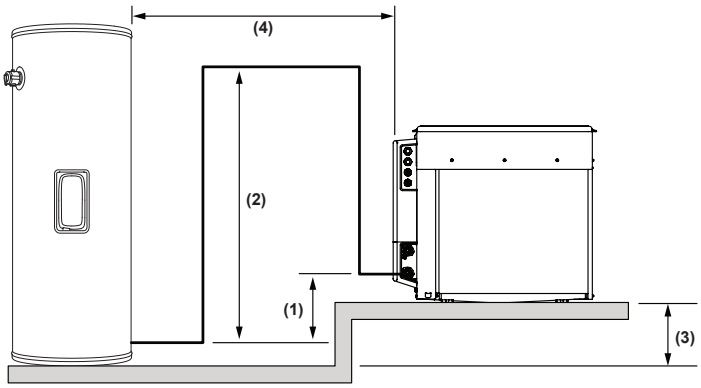
Piping height (1) **MUST** be within 3m below the Heat Pump cold water inlet.

Right angle loop (2) **MUST** be within 3m overall and only in one location.

Overall height difference **MUST** be within 3m between Heat Pump and Tank. (3)

Distance between Tank and Heat Pump must be within 5m (4)

The sum of (2) and (3) **MUST** be within 3m



CONNECTING THE PTR VALVE

Connect the PTR valve to the uppermost fitting of the Tank. See the diagram ‘Connections’ on page 17.

The PTR pressure rating **MUST** be suited for the Tank and adequate for the thermal loading applied to the Tank, as specified in the table on page 14. The supplied PTR valve input rating is 10.0 kW. The PTR valve rating **MUST EXCEED** the total input from the Heat Pump. For example, the maximum output from the SHPR50 is 5.0kW (see table on page 14). As this is less than 10.0 kW, the supplied PTR valve is sufficient.

Use Teflon thread tape on the valve, never use hemp or other sealing materials. Ensure the tape does not protrude past the end of the thread, which could result in it hanging over the end of the thread and blocking the water passage through the valve.

The PTR valve **MUST** be installed on the connection marked ‘hot water outlet’ near the top of the Tank. Leave the valve outlet pointing down. Tighten the valve using the spanner flats - never use the valve body.

Connect the supplied PTR valve into the top socket marked “Relief Valve” and discharge according to plumbing regulations. PTR Valves for the unit are rated at 1000kpa.

The drain line from this valve **MUST** run in a continuously downward direction with the discharge end left permanently open to atmosphere.

PLUMBING CONNECTIONS

Refer to the diagram on page 17 for detailed information on position of plumbing.

An approved isolating valve, non return valve, line strainer, and union **MUST** be fitted between the supply main and the RP ¾ socket in the water heater. All Fittings **MUST** be approved by the relevant installation Authority.

An ECV **MUST** be fitted in Western Australia and South Australia to the cold water supply to the Tank to comply with local regulations.

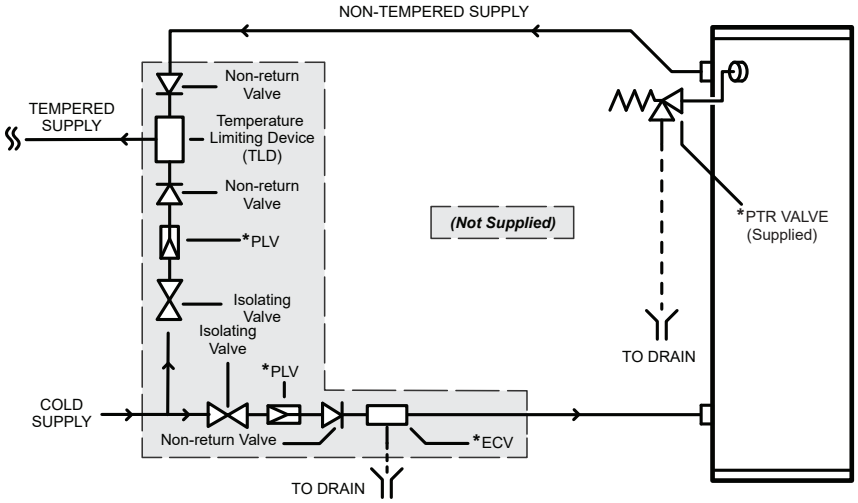
An ECV is recommended in all other geographical areas where the water supply has a tendency to cause scaling. This reduces hot water discharge from the pressure and temperature relief (PTR) valve which minimises wear.

This water heater is designed for direct connection to water supply pressures of no greater than those specified on page 14. Where the mains pressure can exceed or fluctuate beyond this, a pressure limiting device (complying with AS1357) **MUST** be fitted.

Connect Cold / Hot Water Supply

- Connect cold water supply, Pressure Limiting Valve (PLV) and or Expansion Control Valve (ECV).
- Connect cold water supply to the storage Tank (refer to Diagram BELOW).
- A stop cock, non return valve and line strainer **MUST** be fitted.

Connect the pipe work supplying hot water to the premises to the hot water outlet on the Tank.

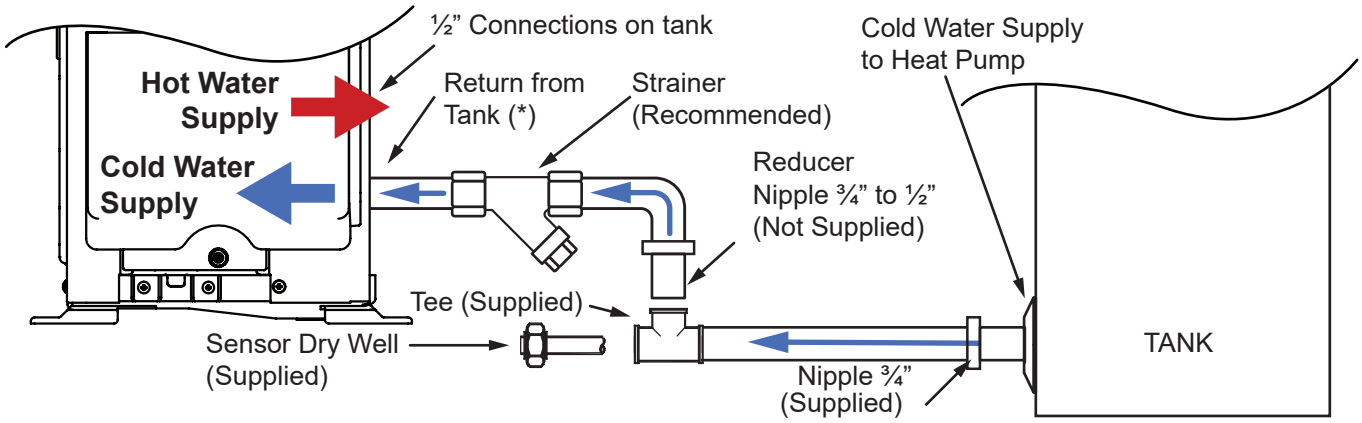


A temperature limiting device is required as per regulations as detailed in the section ‘Hot Water Delivery Temperature’ on page 19.

It is recommended that all hot water lines use high temperature, UV resistant 13mm closed cell insulation.

Outlet to Heat Pump from Tank

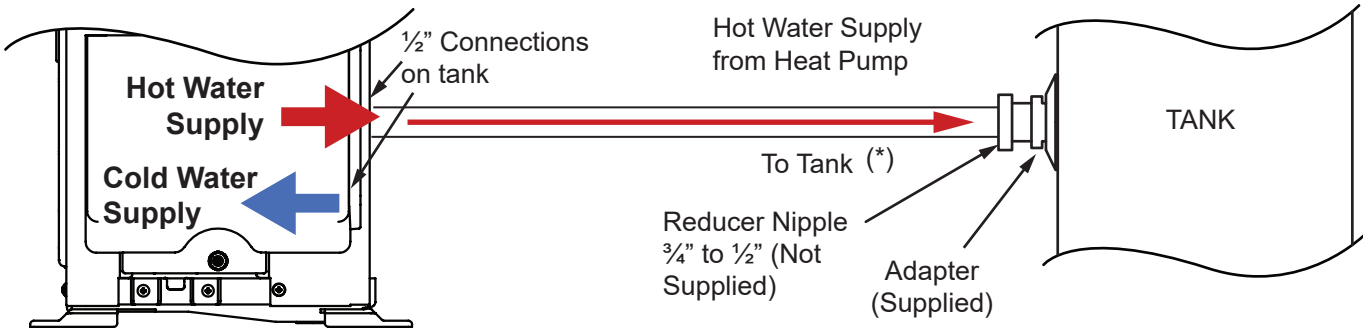
1. A combined Tee and Nipple, Sensor Dry Well is supplied with the Tank.
2. Attach the Sensor Dry Well for sensor mounting to one of the left or right ends of the Tee.
3. Attach a Nipple to the remaining one of the left or right ends of the Tee and connect to the “Cold Water Supply” port in the Tank Unit.
4. Attach a Reducer Nipple to the remaining end of the Tee and connect the pipe. Connect the remaining end of the pipe to the “Cold Water Supply” port in the Heat Pump.



IMPORTANT **It is highly recommended to install an in-line strainer in the cold water supply to heat pump.**

Hot Water from Heat Pump to the Tank

1. Attach an adapter to the “Hot Water Supply from the Heat Pump” port in the Tank Unit.
2. Connect Reducer Nipple to the Adapter.
3. Connect the pipe to the Reducer Nipple attached to the Tank Unit.
4. The remaining end of the pipe should be connected to the “Hot Water Supply” to Tank port in the Heat Pump.



IMPORTANT **In an environment where the outside temperature is below 0°C, for the piping area indicated by asterix (*) in the figures above, install anti-freeze heaters.**

Heat Pump Hot Water Outlet and Cold Water Inlet ports

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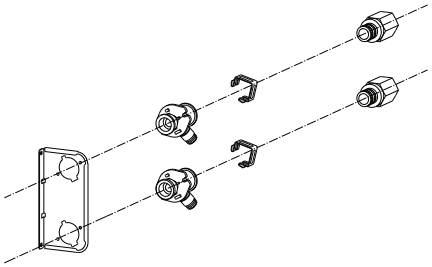
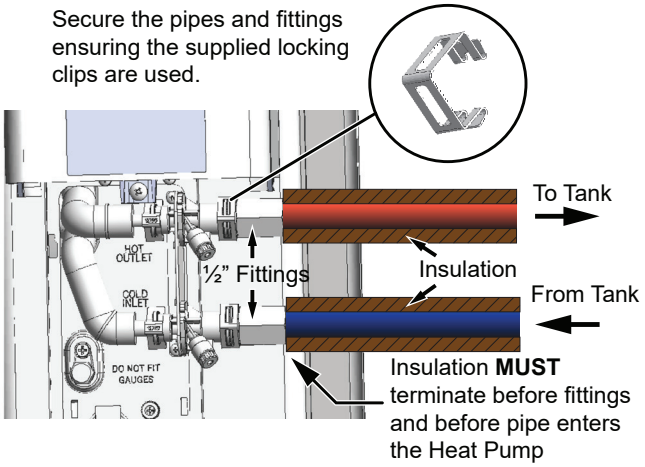


1. Each port has a removable Fitting.
2. Remove fittings and connect to the plumbing.
3. Reinstall the Heat Pump fittings.
4. Fit the locking clips to secure the fittings.

Secure the pipes and fittings ensuring the supplied locking clips are used.



Connect Condensate Drain line

A condensation drain line is required to be fitted to carry discharge clear of the water heater.

The condensate drain line should not be connected to the PTR drain line but can exit to the same point.

The diagram below shows the location of the condensate drain on the Heat Pump.

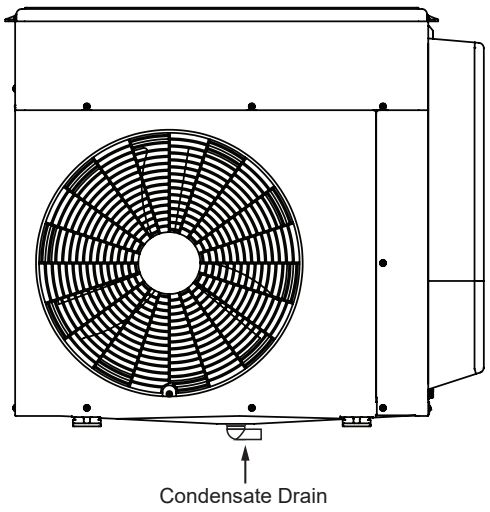
Independent 15mm copper pipes **MUST** be fitted to the drain outlets of the PTR and ECV.

Each pipe **MUST** be open to atmosphere and run with a continual downward grade in a frost free environment to a visible discharge point.

Drain lines **MUST** not exceed 9 meters in length.

Valves or other restrictions **MUST NOT** be placed in the relief valve drain outlet line.

Heat Pump **MUST** be installed on minimum 30 mm mounts



ELECTRICAL CONNECTIONS

WARNING

HAZARDOUS VOLTAGE.
Risk of Electrical Shock.

Disconnect all sources of supply prior to servicing

WARNING

WARNING

The power supply to the Heat Pump MUST NOT be activated until the system is filled with water.

The premises wiring to the heater MUST be capable of withstanding the appliance load. Refer to specification table for load details.

All electrical connections and wiring MUST be installed, maintained and removed by authorised persons in accordance with AS/NZS 3000, and all other relevant local regulations and municipal building codes including OH&S requirements.

IMPORTANT

The Heat Pump is NOT fitted with a power cord & plug, It MUST have the supply terminals connected to an independent, fused, AC 220-240V 50 Hz power supply with an isolating switch installed at the switch board, which MUST effectively isolate all active supply conductors from the circuit and means for disconnection MUST be incorporated in the fixed wiring in accordance with the wiring rules.

In Australia, a Residual Current Circuit Breaker (RCD) MUST be installed to the power supply to this appliance. We always recommend an RCD is installed for the power supply to this appliance where not a mandatory requirement in some states or jurisdictions.

IMPORTANT

Disconnect all power prior to installation and commissioning.

This appliance is designed for single phase 220- 240 Volts, AC mains electrical operation.

Main Power and Power supply to Element Cables

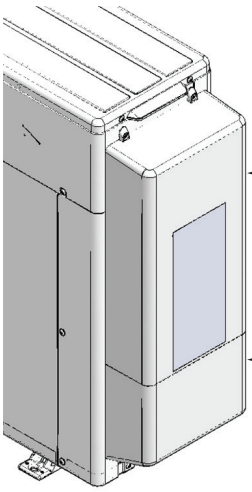
These cables are not supplied with the unit. 3 X 2.5mm² (Outer diameter 9.9mm) should be used.

IMPORTANT

This appliance MUST NOT be connected via a switchable or a solar (photovoltaic - PV) power supply without manufacturer consultation.

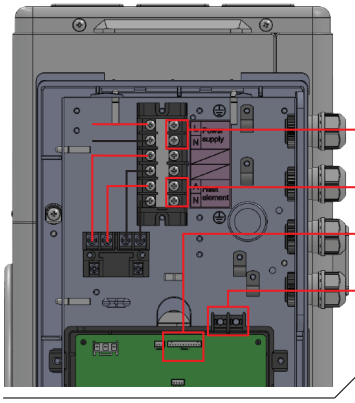
Mains power must be provided continuously for the appliance to function correctly. If power is interrupted the wall controller clock will be reset.

Heat Pump Electrical Connections



Heat Pump Unit Electrical Connections Access

Heat Pump Unit Plumbing Cover Removed

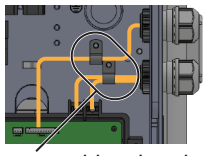


Active, Neutral and Earth Wires

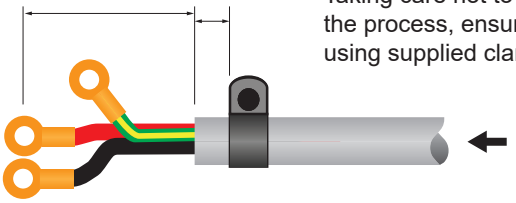
Element Heater Wires

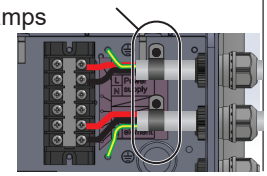
Tank Upper/Bottom Sensors

Remote Controller Wires

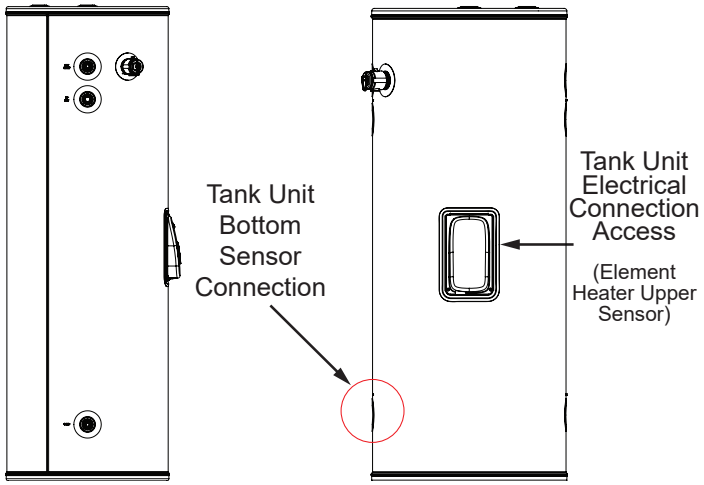


Taking care not to damage cable wires in the process, ensure cables are secured using supplied clamps





Tank Unit Electrical Connections

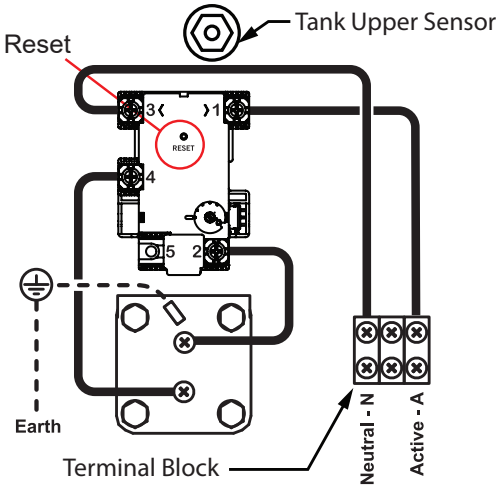


Tank Unit Bottom Sensor Connection

Tank Unit Electrical Connection Access

(Element Heater Upper Sensor)

Element Heater Wires Connection from Terminal Block



Connection Instructions

1. For electrical access to the Heat Pump, open the Plumbing Cover by removing one fixing screw. Remove the three fixing screws to remove the Electrical Cover and two fixing screws to remove the Tank Unit Electrical Connection Access.
2. All outside wiring **MUST** connect through the weatherproof conduit nipple on the side of the electrical box.
3. Follow the wiring diagram included with the Tank Unit.
4. Connect Active, Neutral and Earth Wires with nylon clamp to the Heat Pump Terminal Block.
5. Connect Element Heater wiring with nylon clamp between Element Body and the Heat Pump Terminal Block.
6. The Tank Upper/Bottom Sensors are electrically connected to the electrical box of the Heat Pump.
7. Connect wiring between the Remote Controler and the Terminal Block on the Heat Pump PCB board.
8. Ensure incoming Earth wire is securely fixed to the earth post provided on the Heat Pump electrical box.
9. Ensure incoming Earth wire is securely fixed to the earth post provided on the Tank Unit heater case.
10. Install the Tank Upper/Bottom Thermistors on the Tank Unit.

Inspect and ensure that all wiring links are secure prior to fixing the access cover and turning the Power On.To ensure the over-temperature and energy cut-out is set, press the RESET button on the Thermostat.

REMOTE CONTROLLER INSTALLATION

Location

IMPORTANT

- **DO NOT install remote controller near a heat source, such as a cook top, stove or oven. Heat, steam, smoke and hot oil may cause damage.**
- **DO NOT install remote controller outdoors.**
- **The remote controller MUST NOT be installed in a bathroom.**
- **DO NOT install remote controller in direct sunlight.**
- **DO NOT install remote controller against a metal wall unless the wall is earthed in accordance with AN/NZS 3000.**
- **Remote controllers MUST NOT be installed where chemicals such as benzene, alcohol, turpentine, hydrogen sulphide, ammonia, chlorine or other similar chemicals are in use.**

The remote controller is a water resistant device, however excessive exposure to water may result in damage to the remote controller. Durability is improved when positioned outside the shower recess.

- **AVOID direct exposure to water or steam as these conditions may cause a malfunction.**
- **Remote controller must be installed in shaded and clean locations. They should be fitted out of reach of children (suggested height from floor to be at least 1500 mm). Remote controller MUST BE installed at least 400 mm above the highest part of a sink, basin or bath.**
- **When cleaning your controller use ONLY a damp cloth and a mild detergent.**

For remote controller dimensions refer to 'Dimensions' on page 15.

1. Determine the most suitable position, refer above.
2. Using the wall mounting bracket as a template mark and drill 3 holes (mounting and cable access) refer to 'Dimensions' on page 15
3. Fix the mounting bracket to the wall using the appropriate fixings.
4. Run the cable through the hole in the wall

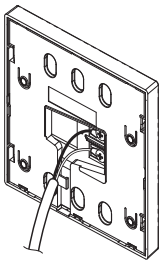


Fig. 1

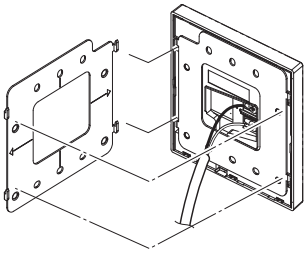


Fig. 2

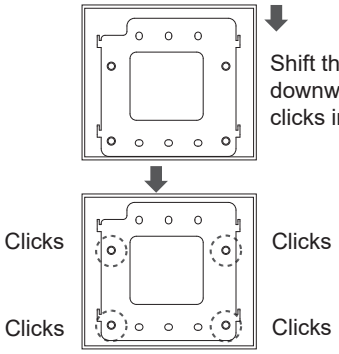


Fig. 3

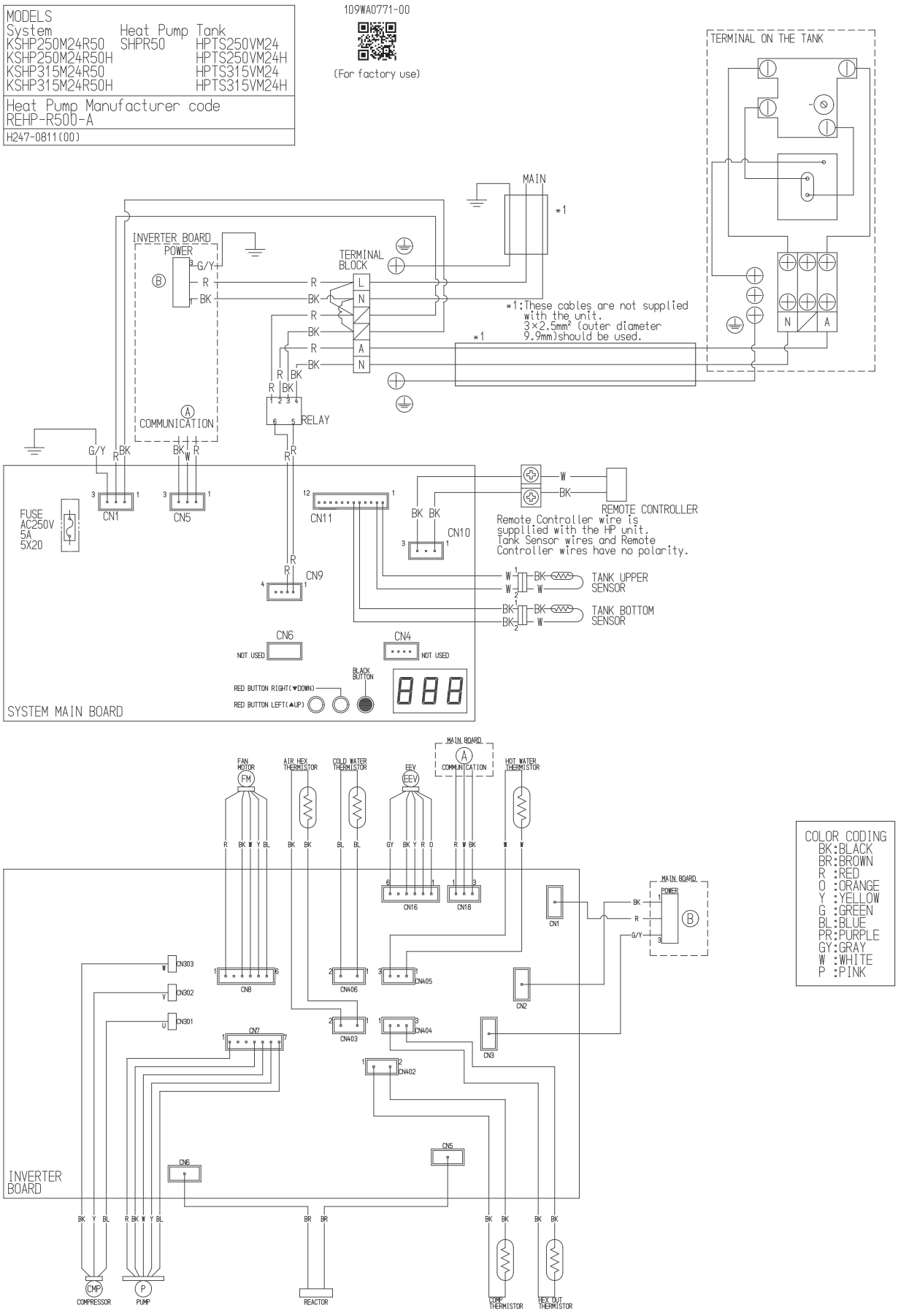
Fig. 4

5. Connect the cable to the remote controller screw terminals (Fig. 1).

   Remote controller are not polarity sensitive. Feed any excess cable lengths into the wall cavity to avoid the pinching of cables between the wall and the controller.

6. After attaching the mounting bracket so that it connects into the hole of the remote controller (Fig. 2), shift the remote control downward until it clicks into place (Fig. 3). Remove the transparent protective film on the front of the remote controller (Fig 4).

WIRING DIAGRAM



HAZARDOUS VOLTAGE.
Risk of Electrical Shock.

Disconnect all sources of supply prior to servicing

ELECTRICAL TESTS

DO NOT turn on the power supply to the appliance until it has been filled with water and a satisfactory insulation (Megger) test has been performed.

Conducting Insulation (Megger) Tests

When conducting an insulation test using a Megger on this appliance, observe the following:

WARNING

This appliance contains electronic components. Insulation tests (500 Volts) this MUST ONLY be conducted the across active terminal to earth and then across the neutral terminal to earth.

Tests between the active to neutral terminals MUST NOT be performed as this WILL damage the electronic components.

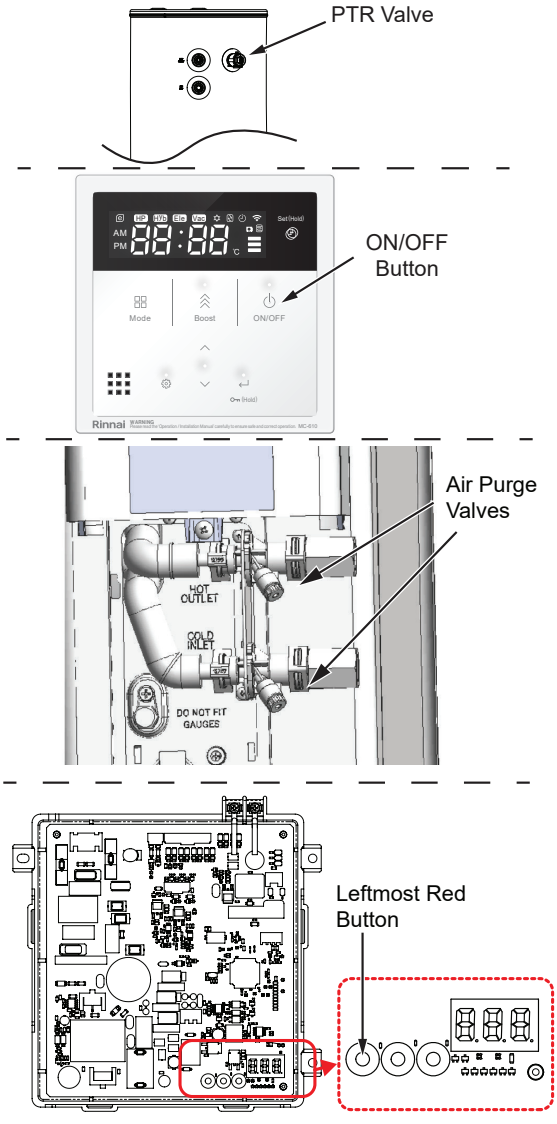
Insulation test results of greater than **10 KΩ** is normal for this appliance.

In accordance with AS/NZS 3000 an insulation test with a result less than **1 MΩ** is permitted where the appliance is approved to a Standard applicable to that class of appliance.

This appliance is categorised as a 'stationary Class 1 motor operated appliance' and therefore satisfies the requirements of AS/NZS 60335.2.40 for leakage current and electric strength. As such, this appliance complies with the insulation resistance requirements of AS/NZS 3000.

FILLING THE SYSTEM

1. Remove electrical access and plumbing cover.
2. Open hot water tap at sink and PTR Valve.
3. Open the stop cock in the cold water main supply line. Allow the system to fill and the air to bleed through the tap.
4. Turn off the hot tap at the sink and PTR Valve when water flows freely without any air bubbles or air bursts.
5. Open air purge valves on the side of the Heat Pump for at least three minutes.Then close air purge Valves.
6. Turn on power to the Heat Pump unit and wait 30 seconds.
7. Turn on the circulation pump by pressing and holding the leftmost red button on the PCB board or by Remote Controller ("Changing Functions" on page 29)."Pon" will show on the LED display.
8. Check the circulation for more than 1 minute. If there is no circulation, purge the air again (steps 2-5).
9. Turn off the circulation pump by pressing and holding the leftmost red button on the PCB board or by Remote Controller ("Changing Functions" on page 29)."Pof" will show on the LED display.
10. If leaks are detected turn off power to the Heat Pump, repair leaks and repeat filling process to remove any air.
11. If no leaks are detected water heating can commence.
12. Turn on the ON/OFF Button on the remote control and wait for the Heat Pump unit to start.
13. The Heat Pump will start after two minutes of protection time.
14. Reaffix electrical access and plumbing cover.

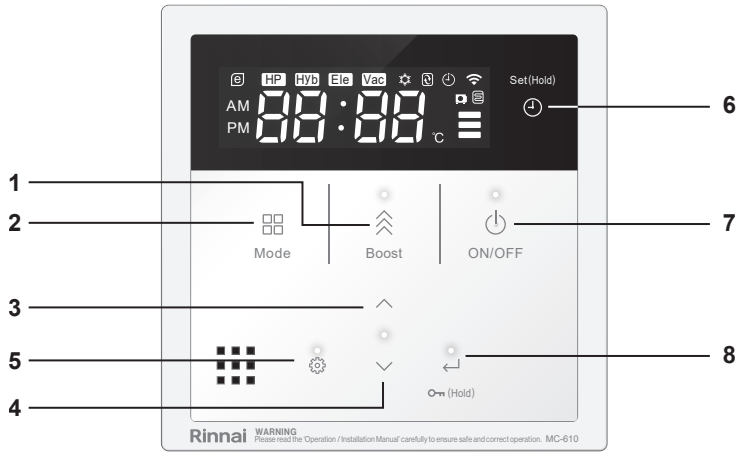


Finishing the Installation

After testing is completed explain to the householder the functions and operation of Heat Pump water heater components. Explain to the householder the need to drain the Heat Pump if freezing conditions are likely and power is likely to be shut off.

Also explain to the householder the importance of carrying out maintenance in accordance with this manual. Complete the 'Commissioning Checklist' on page 31 and leave this manual with the householder.

CONTROLLER OPERATION



1	Boost Button	5	Settings Button
2	Mode Button	6	Time-Set / Display-Change Button
3	Up Button	7	ON/OFF Button
4	Down Button	8	Enter / Child-Lock Button

When the power supply turns on, the Heat Pump control system initiates and will check the operating parameters. The controller checks all sensors. If conditions are suitable (i.e reading within the reasonable range) and enough energy available is in the ambient air, the fan, circulating pump and compressor will turn on. If not enough energy is detected in ambient air then selection of Hybrid mode is recommended.

There will be a delay of approximately 2 minutes from restarting before pump, fan and compressor begin operating.

The unit is self regulating so there are no internal adjustments to be made during commissioning. When the unit is operated for the first time, it runs through an initial heat up cycle, allow time for the initial heat up cycle. Depending on the ambient conditions this can take several hours.

Monitor Operation Mode and Thermistor Temperatures

15 to 30 minutes after the Heat Pump starts heating, use the remote controller to switch to Monitor Operation and check the corresponding thermistor temperature.

To enter Monitor Operation mode, press the ON/OFF Button while holding down the Down Button. In the Monitor Operation mode, press the Up/Down Button multiple times to change the value of the rightmost 2 digits of the LED display to show Monitor Number "1C" or "2F". Check the corresponding thermistor temperature and determine whether there is a problem with the piping connection between the Heat Pump and the Tank.

Monitor Number	Measurement	Value	Piping
1C	Heat Pump outlet temperature	Same as the set temp	Correct
2F	Tank Bottom Thermistor	Same as the Cold water	
1C	Heat Pump outlet temperature	Same as the set temp	Error
2F	Tank Bottom Thermistor	Same as the set temp	

When you have finished checking the thermistor temperature, press the ON/OFF Button while holding down the Down Button. This returns the remote control display back to normal operation.

Once its first heat up cycle is complete, empty approximately 60 litres of hot water from the Tank through the PTR valve outlet then allow the water in the Tank to re-heat. Once the re-heat cycle is completed measure the water temperature at the PTR outlet again. The temperature will be approximately 60º C.

If for any reason the unit does not start, the water is cold and the Remote Controller unit is not displaying any LED lights, an electrician should test that power is available to the Heat Pump.

Changing Settings

Pressing the Setting Button selects the Settings Number for the leftmost two digits of the LED display.

While selecting the target Settings Number press the Up/Down Button to confirm the value of the rightmost two digits of the LED display.

Setting Number		Value	Description	Default
01	(Timer)	0F	Ready to Heat Always 24Hr/7days	Y
		1	Off Peak 1 (10pm to 7am, 9hrs)	
		2	Off Peak 2 (12pm to 6pm, 6hrs)	
		3	Solar PV (10am to 4pm, 6hrs)	
		4	Custom (for App use) Factory default setting 2am to 9pm,19 hrs	
02	(Display power saving)	0F	No display lights off (no power saving)	
		1	After 1 minute, the display turns off	
		2	After 10 minutes, the display turns off	Y
		3	After 25 minutes, the display turns off	
03	(Buzzer sound on/off)	0F	No sound	
		On	Sound is available	Y
04	(Display during power off)	0F	Invalid	Y
		On	Valid	
05	(Storage level display)	0F	Invalid	
		On	Valid	Y
06	(Storage level display during power off)	0F	Invalid	Y
		On	Valid*	
07	(Heat Pump Quiet Operation)**	0F	Invalid	Y
		On	Valid	

**Storage level display during power-off is valid if 05 (Storage level display) is valid. Storage level will be displayed during de-icing water heating.*

***Heat Pump Quiet Operation is valid only during normal operation. It is not applicable when in Booster mode and during thermal sterilisation cycles*

Press Enter Button twice (once if no changes have been made) or leave for 1 minute to return the display to normal.

In Quiet Operation the operation time for heating water can be longer than other modes. Therefore the possibility for running out of hot water is higher.

Changing Functions

Press and hold the Down Button, while also pressing and holding the Up Button and ON/OFF Button to enter Change Function mode.

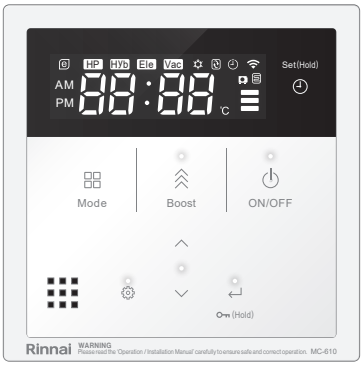
Each time the Setting Button is pressed, the Settings Number for the leftmost two digits of the LED display will be selected.

While selecting the target Settings Number press the Up/Down Button to confirm the value of the rightmost two digits of the LED display.

No.	Function	Value	Description	Default
01	Test run pump operation	Off	Pump stopped	Y
		On	Pump operation (automatically stops after 30 minutes)	
02	Power comes back on	Off	Always OFF, when the power comes back on	Y
		On	Previous state is maintain, when the power comes back on	

Press Enter Button twice (once if no changes have been made) or leave for 1 minute to return the display to normal.

CONTROLLER LED FLASHING CODES



Display	Description	Display	Description
AM PM 88:88	Time/Temperature Set / Function		Heat Pump Turn On
HP Hyb Ele	Operation Mode (Heat Pump/Hybrid/ Element)		Element Turn On
	Eco Mode (not Quiet Operation) Heat Pump 55°C only		Operation Timer is Set
Vac	Vacation Mode		Wi-Fi Connection
	Anti-Freezing		Storage Volume 100% Upper Tank Sensor ≥ 45°C and Bottom Tank Sensor ≥ 40°C
	Thermal Sterilisation (Automatic Function)		Storage Volume 66% Upper Tank Sensor ≥ 45°C and Bottom Tank Sensor < 40°C
		Storage Volume OFF	When ON/OFF lamp is ON but Upper Tank Sensor reads <45°C the Controller will beep and storage volume display will disappear. This means there is no hot water'.

Ensure that the Remote Controller is not displaying the Flash Code once the unit has been switched on.

	Operation Mode	Description
Display / Remote Controller	HP	55 / 60 / 65°C uses Heat Pump system only
	Hyb	60 / 65°C uses a combination of the Heating Element, operates following Heat Pump system.
	Ele	55 / 60 / 65°C uses Heating Element only

For commercial installation select the **HP** mode and adjust the temperature set point to 65°C.

When the boost button is pressed, appliance will operate at, 55 / 60 / 65°C using both the Heat Pump system and heating Element. *(Boost mode cannot be selected during thermal sterilisation cycle)*

If the Remote Controller is displaying the Flash Code, please refer to the table below to find the fault.

Flash Code	Description
038	Tank not filled, abnormal heating
148	Heat Pump outlet high temperature fault
218	DC fan motor locked
268	Heat Pump discharge high temperature fault
308	Communication fault between inverter PCB and system PCB
338	Heat Pump evaporator sensor fault
358	Heat Pump discharge sensor fault
368	Heat Pump condenser fault
518	Heat Pump compressor fault
528	Heat Pump input current fault
538	Heat Pump compressor start-up fault
548	Heat Pump DC overcurrent fault
648	Circulation pump rotation fault

Flash Code	Description
768	Communication fault on inverter PCB
778	Heat Pump PAM circuit voltage fault
798	Power supply voltage fault
968	Pump inlet not filled, abnormal circulation
A18	Heat Pump water inlet sensor fault
A28	Heat pump water outlet sensor fault
109	Communication fault between Remote Controller and system PCB
149	Tank is filled with high temperature water, abnormal heating
279	Tank upper sensor fault
709	System PCB fault
729	Element heater circuit fault
A19	Tank bottom Sensor fault

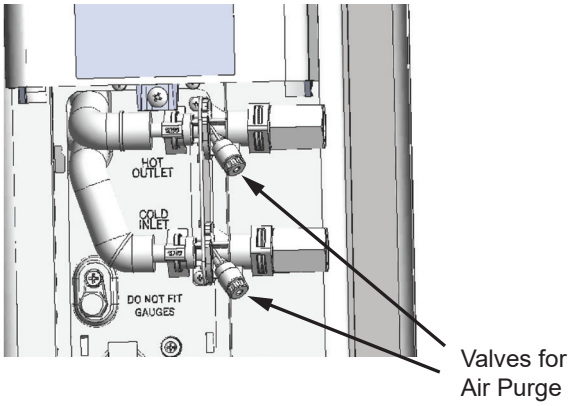
COMMISSIONING CHECKLIST

Installer to complete and return to householder to retain for reference.

Step	Description	Step Complete	Notes
Step 1	Plumbing completed.		
Step 2	Wiring completed.		
Step 3	Open PTR valve and taps. Tank filled up with water and system is purged by PTR valve and taps.		
Step 4	Close PTR valve and taps. Open Air Purge valves on the side of the Heat Pump for at least three minutes. Heat Pump is purged from those valves.		
Step 5	Heat Pump is plugged in. Press leftmost red button on the PCB. Display shows ‘Pon’ and pump circulation will start.		
Step 6	Check the circulation for more than 1 minute. If there is no circulation, purge the air again.		
Step 7	Press leftmost red button on the PCB. Pump will be stopped.		
Step 8	Press ‘ON/OFF’ Button on the wall controller and start heating.		
Step 9	Make sure there is no leakage of water from any connection.		
Step 10	Touch water connectors. Top connector should be HOT, Bottom one should be Cold.		
Step 11	Keep pressing ‘Down’ Button, then press ‘ON/OFF’ Button also. Press ‘Down’ or ‘Up’ Button and select data. After 15-30min. review the temperature. (Refer to ‘Monitor Operation Mode and Thermistor Temperatures’ on page 28)		
Step 12	Press ‘Down’ & ‘ON/OFF’ Button.		
Step 13	Cover the connectors with plumbing covers.		

Signed	
Date	

Layout of Air Purge Valves



WI-FI

Wi-Fi Connection

Please follow below steps to set up and operate Wi-Fi functions.

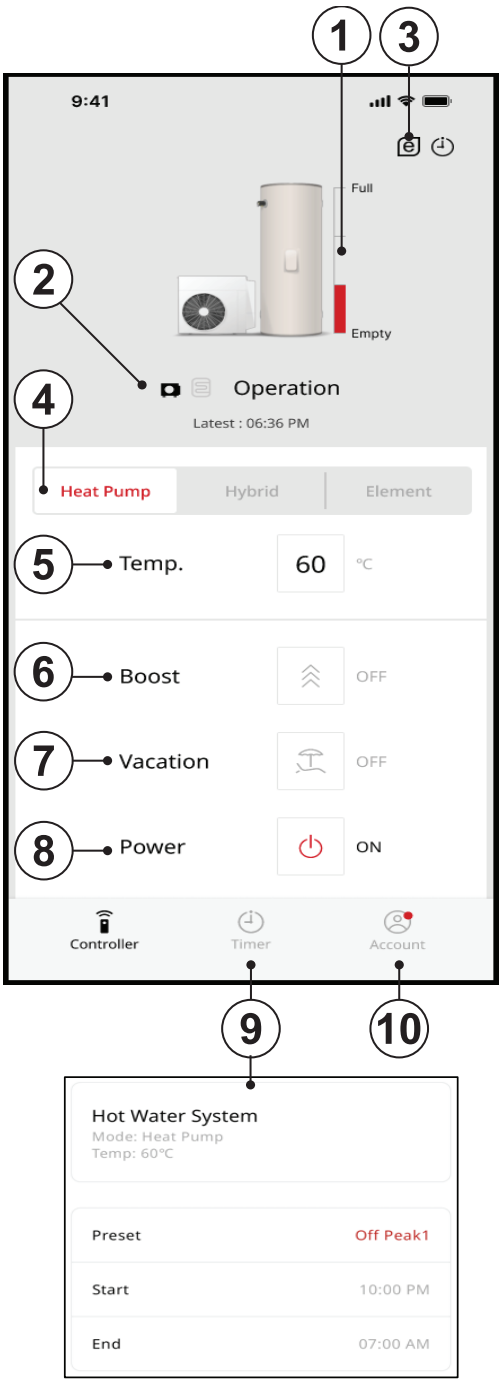
1. Prepare a Wi-Fi wireless router that can access the Internet, The Wi-Fi frequency band must be 2.4 Ghz and should be placed within 10 meters of the Remote Controller to ensure that a strong Wi-Fi signal is available.
2. Turn on Wi-Fi on your mobile device. The connection procedure will begin only when your mobile device is connected to Wi-Fi.
3. Search in the app market to download and install the ‘Rinnai Link’ App.

- iOS users – please download from App Store

- Android users – please download from Google Play

4. Connect the Remote Controller to the Wi-Fi router. Follow the App’s operating instructions to operate the Remote Controller and connect to the same Wi-Fi router in your home.
5. Connect your mobile device and Remote Controller. After connection to the same Wi-Fi router, follow the App’s operating instructions to complete the set-up.
6. When configuration is complete, you can control the Heat Pump with the App.

App Control Layout



1. **Hot water storage:**
The amount of hot water stored is displayed in three stages.
The hot water storage level flashes while operating.

2. **Status:**

Lights up when the heat pump is operating.

Lights up when the element heaer is operating.

Operation — Displays the status of each state

Operation：Water is being heated.
Standby：Heating is complete.
Vacation：Vacation mode is being set.
Stopped：Power is off.

3. **Function Icons**：

Lights up when the heat pump is operating.
Temperature is set to 55°C. (N/A in Quiet Operation)

Lights up when the timer is set.

4. **Mode Setting**：
Change and Set each mode (Page 30).

5. **Temperature Setting**：
Change and Set the temperature. (Page 30)

6. **Boost Setting**：
Turn On/Off the boost operation.

7. **VacationSetting**：
Set the number of days for vacation (1-15 Days)

8. **TurnOn/Off**：
Turn the power On and Off.

9. **Timer Setting**：
Off：Turn off the timer setting. (Default)
Off Peak1：Timer is set to a fixed value of 10:00PM -7:00AM.
Off Peak2：Timer is set to a fixed value of 12:00PM -6:00PM.
Solar PV：Timer is set to a fixed value of 10:00AM -4:00PM.
Custom：Set custom times in 10minute increments.

10. **Setting up your account**：
Change various settings.

Wi-Fi - Troubleshooting

Issue	Potential Cause
Configuration cannot be completed.	Check that you are only connected to the 2.4Gz Wi-Fi frequency. This may require disabling the 5Gz Wi-Fi frequency temporarily at the modem during the configuration.
	Check Wi-Fi signal strength at the Remote Controller.You will require a minimum of 3 bars Wi-Fi signal to be connected. To display Wi-Fi signal strength in detail, press and hold the Up switch while also pressing and holding the Boost switch.Wi-Fi signal strength is displayed as a value on a scale **-100** to **0**. The closer it is to **0** the stronger the signal and the closer it is to **-100** the weaker the signal.
	Check you have the correct App downloaded.

WARRANTY

RINNAI SERIES ELECTRIC HEAT PUMP WATER HEATER PRODUCT WARRANTY

Warranty Terms

The warranty terms in this publication apply only to Enviroflo Split (SHPR50) Electric Heat Pump Water Heater.

System	Heat Pump	Tanks
KSHP250M24R50	SHPR50	HPTS250VM24
KSHP250M24R50H	"	HPTS250VM24H
KSHP315M24R50	"	HPTS315VM24
KSHP315M24R50H	"	HPTS315VM24H

The benefits to the consumer given by this warranty are in addition to all other rights and remedies of the consumer under a law in relation to the goods or services to which the warranty relates.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Rinnai will repair or provide parts for repair or replacement, in the event of product defects arising from faulty materials and/or Rinnai workmanship, in accordance with the Warranty Terms in Tables 1 and 2, Definitions, Warranty Conditions and Exclusions stated in this document.

Rinnai is responsible for reasonable costs associated with legitimate warranty claims, if and when validated by Rinnai. This includes call-out of an authorised Rinnai service provider to inspect the product. Rinnai is not responsible for:

(a) any costs that are not pre-approved in writing by Rinnai Australia.

(b) any costs associated with a product which is determined upon inspection not to be covered by this warranty.

(c) any excess costs associated with attending a site located in a remote area nominally 40 km from the authorised Rinnai service provider, as confirmed by Rinnai, or off the state/territory mainland. Any such costs including travel, insurance and delivery will be the sole responsibility of the Customer.

The consumer will be reimbursed by Rinnai for any reasonable costs associated with making a legitimate warranty claim against Rinnai which are not otherwise specified above.

Enquiries relating to warranty coverage and claims for Rinnai products or services must be made by contacting Rinnai Australia.

Authorised Rinnai service providers can repair or replace product components, subject to Rinnai warranty terms and conditions. Rinnai Australia can, in addition, provide information on operation and maintenance of Rinnai products. Rinnai Australia contact details are on the back of this document.

TABLE 1 – Parts and labour warranty periods (years) Rinnai Electric Heat Pump Water Heaters

Rinnai Electric Heat Pump Water Heaters		Enviroflo Split		
		Cylinder*	Refrigeration Components (1)	Other Components (2)
Domestic Use	Parts	10 Years	5 Years	1 Year
	Labour (3)	5 Years	5 Years	1 Year
Commercial Use	Parts	1 Year	1 Year	1 Year
	Labour (3)	1 Year	1 Year	1 Year

(1) Refrigeration Components include but are not limited to: compressor, condenser, expansion valve, heat exchanger, evaporator and associated pipe work.

(2) Other Components include but are not limited to: sensors, thermostats, valves, electric heating elements, anodes.

(3) No repair labour warranty applies to any component, refrigeration and cylinder warranties outside the specified Labour Warranty period.

* Inner Storage Cylinder

Notwithstanding the above periods in Table 1, a 5-year whole-of-product 'Parts and Labour' warranty is offered for domestic use where a hot water rebate has been received under the Solar Victoria Solar Homes Program for domestic installations from 1 July 2023 and where a rebate is received under the Victorian Energy Upgrade (VEU) for Domestic and Commercial use from 1st February 2025. For further details, contact Rinnai on 1300 555 545.

DEFINITIONS

Domestic Use:

The warranty periods that are allocated under “Domestic Use” are based on hot water usage patterns of a typical family, for personal hygiene use.

Rinnai “Domestic Use” warranty periods apply to:

1. Water heaters installed to supply heated water to single family domestic dwellings.

2. Water heaters installed to supply heated water to commercial installations such as motel units, hotel rooms, caravans, mobile homes, nursing homes, retirement village complexes and other care institutions and like accommodation provided that maximum delivery temperatures do not exceed 70ºC and that the hot water systems are not installed as component(s) of centralised bulk hot water systems and the installation does not incorporate building flow and return systems.

Commercial Use:

The warranty periods that are allocated under “Commercial Use” are for all other applications other than domestic use and include premises such as commercial and industrial buildings, schools, cafes, hotels, caravan parks and sporting complexes, but not limited to these.

Rinnai “Commercial Use” warranty applies to:

1. Water heater(s) supplying central shower blocks.

2. Water heater(s) supplying kitchens used for the bulk preparation of food.

3. Water heater(s) delivery temperatures preset to exceed 70°C.

4. Water heater(s) used in commercial or industrial heating processes.

5. Water heater(s) used in hydronic space heating installations.

6. Any application that uses Rinnai water heater(s) in conjunction with building flow and return systems.

7. Water heater(s) installed as component(s) of centralised bulk hot water system(s).

WARRANTY CONDITIONS

1. Warranty and the extended warranty applies to products which are manufactured on or after the date of publication of this warranty but before the next date of publication of this warranty.

2. All terms of this warranty are effective from date of completion of installation of the appliance(s) and the attending service person reserves the right to verify this date by requesting proof of purchase or a copy of the certificate of compliance prior to the commencement of any warranty work. Where the date of completion of installation is not known, then this warranty will commence 2 months after the date of manufacture. The date of manufacture is stated on the dataplate of the appliance.

   Note: Certificates of compliance must be issued by the installer by law in all States and Territories of Australia.

3. All Rinnai water heating components must be installed, commissioned, serviced, repaired and removed in accordance with the manufacturer’s installation instructions, current AS/NZS 3000, AS/NZS 3500, AS/NZS 5601, local regulations and municipal building codes by persons authorised by local regulations to do so.

4. All Rinnai water heaters must be operated and maintained in accordance with manufacturer's operating instructions.

5. The warranty applies only to the components supplied by Rinnai. It does not apply to components supplied by others, such as pressure limiting valves, isolating valves, non return valves, electrical switches, pipework, electrical cables and fuses, but not limited to these.

6. Any inspection, service, repair or replacement activities associated with warranty on Rinnai products must be authorised by Rinnai Australia before commencement.

7. Where the appliance is installed at a location that is determined as remote by Rinnai, or nominally over 40 km from the nearest authorised Rinnai service provider, or off the state/territory mainland, any such costs including travel, insurance and delivery of products will be chargeable to the Customer.

8. Where the appliance has not been sited in accordance with the installation instructions or installed such that safe assessment or service access requires machinery or is difficult, a service charge will apply. If at the discretion of the attending service person, access is deemed dangerous, service will be refused. Any work required to gain reasonable or safe access to the appliance will be chargeable by the attending service person (for example, removal of cupboards, doors, walls, or the use of special equipment to move the appliance or components to floor level, perform diagnostics, but not limited to these).

9. Where a failed appliance or component is replaced under warranty, the balance of the original appliance warranty will remain effective. The replacement part or appliance does not carry a new warranty.

10. Rinnai may at its sole discretion, return any removed product or component to the factory for inspection.

11. This warranty applies to water heaters connected to a water supply where the water chemistry and impurity levels do not exceed any of the limits specified in Table 2. The water supply from water utilities generally complies with these requirements. However, where water sources change, or any history of uncertainty exists, water quality must be tested, or otherwise treated, to comply with these specifications.

TABLE 2 – Water Characteristics

Rinnai Water Heater System Type	**Total Dissolved Solids (TDS)** mg/Litre or ppm	**Hardness (as $CaCO_3$)** mg/Litre or ppm	**Saturation Index** (Langelier)	**pH**	**Dissolved CO_2** mg/Litre or ppm	**Chlorides** mg/Litre or ppm
Electric Heat Pump Water Heaters	**2500***	**200**	**+0.4 to -1.0 @ 65°C**	**5.5 to 9.5**	**Not Applicable**	**300**

*For TDS levels up to and including 600mg/litre the Rinnai magnesium based anode is to be used. This is the anode fitted during manufacture of the cylinder. For TDS levels greater than 600mg/litre and not exceeding 2500mg/litre the Rinnai aluminium based anode is to be used. This anode can be fitted by Rinnai or an authorised person. This warranty does not apply if the TDS exceeds 2500mg/litre.

WARRANTY EXCLUSIONS

No warranties except those implied and that by law cannot be excluded are given by Rinnai in respect of Goods supplied. Where it is lawful to do so the liability of Rinnai for a breach of a condition or warranty is limited to the repair or replacement of the Goods, the supply of equivalent Goods, the payment of the cost of repairing or replacing the Goods or acquiring equivalent Goods as determined by Rinnai.

All hot water systems

The following exclusions apply to all Rinnai water heating systems. They may cause the warranty to become void and will result in a service charge and costs of parts (if required):

1. Accidental damage and acts of God.

2. Failure due to abuse or misuse, improper maintenance or failure to maintain.

3. Failure due to incorrect or unauthorised installations.

4. Failure, damage and associated costs resulting from product alterations, service or repair work or methods not authorised by Rinnai.

5. Where it is found that there is no functionality fault with the water heater and the issues are related to the plumbing installation or are due to the failure of water, electric or gas supplies.

6. Where exposed to corrosive atmosphere, salt-affected or coastal environments; and including exposure causing superficial discolouration and aging that is immaterial to the performance and reliability of the product.

7. Where the water heater has failed directly or indirectly as a result of excessive water pressure, negative water pressure (partial vacuum) or water pressure pulsation.

8. Operating the water heater and components when not completely filled with water.

9. This warranty does not apply to water heaters connected to water supplies if the water chemistry and impurity levels exceed the limits specified in Table 2. Examples of water supplies where chemistry and impurity levels may exceed the limits specified in Table 2 include but are not limited to private bores, private dams and water from water utilities where the chemistry is deliberately altered by parties other than the water utility before supplying the water heater.

10. This warranty only applies to water heaters connected to the energy source listed on the data label of the appliance.

11. This warranty does not apply to damage caused by sludge and/or sediment in the water supply nor corrosion due to stray electrical currents affecting the associated piping.

12. This warranty does not apply to colour degradation/damage caused by direct UV exposure.

13. This warranty does not apply for ice formation in the plumbing of the water heater, or related damage, where the electricity supply has failed or been switched off.

14. Labour costs incurred due to a Rinnai Service person or service agent performing checks which should have been carried out by the customer in accordance with the Customer Instructions and where no defect is found.

15. Faults resulting from drilling, screwing or fixing any ancillary items to the outer case of the tank. This product is fitted with a high efficiency heat exchanger attached to the inner cylinder, anything penetrating the outer skin of the tank may damage the heat exchanger.

NOTES

Rinnai Australia Pty Ltd

ABN 74 005 138 769 | AU45204

82-88 Mills Road, Braeside, Victoria, 3195
P.O. Box 460, Braeside, Victoria 3195
Tel: (03) 9271 6625

Customer Support
Tel: 1300 555 545*
Monday to Friday, 8.00 am to 5.00 pm EST.

After Hours Hot Water Service Line
Tel: 1800 000 340*

**Cost of a local call may be higher from a mobile phone. (National calls from public phones in Australia are free.)*

For further information visit **www.rinnai.com.au** or email **enquiry@rinnai.com.au**

Rinnai has a Service and Spare Parts network with personnel who are fully trained and equipped to give the best service on your Rinnai appliance. If your appliance requires service, please call our National Help Line. Rinnai recommends that this appliance be serviced every 2 years.

With our policy of continuous improvement, we reserve the right to change, or discontinue at any time, specifications or designs without notice.

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