Owner's Guide and Installation Instructions





Rheem IQTM **Tariff Intelligent Controller** Version 1.2B25



This Tariff Controller must be installed and serviced by a qualified person. Please leave this guide with the householder or premises responsible officer.

Notice to Victorian Customers from the Victorian Building Authority

This Tariff Controller must be installed by a licensed person as required by The Victorian Building Act 1993

Only a licensed person will give you a Compliance Certificate, showing that the work complies with all the relevant standards. Only a licensed person will have insurance protecting their workmanship for 6 years. Make sure you use a licensed person to install this Tariff Controller and ask for your Compliance Certificate.

A Warning: Upon completion of the installation and commissioning of the Tariff Controller, leave this guide with the householder or responsible officer. **DO NOT** leave this guide inside of the cover of the heat pump, as it may interfere with the safe operation of the heat pump or ignite when the heat pump is turned on.

Installation Information

Date of installation:	
Installed by:	
Purchased from:	

46 Marigold Street Revesby NSW 2212 PO Box 146, Moorebank NSW 1875 ABN: 28 062 383 224 ACN: 062 383 224 Rheem Thermal Systems Group: 1300 132 950 National Service Line: 02 9684 3684 Email: sales@rheemthermal.com.au www.rheemthermal.com.au

PATENTS

This Tariff Controller may be protected by one or more patents or registered designs.

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PREMISES HOUSEHOLDER OR RESPONSIBLE OFFICER

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The 'Installation' section is intended for the installer but may be of interest

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ABOUT YOUR TARIFF CONTROLLER

INTRODUCTION & PRODUCT APPLICATION

This tariff controller is provided as part of a heat pump or chiller system and this document pertains to the installation, operation and programming of the wall or panel mount controller only. Refer to the Owners Guide and Installation Instructions supplied with the heat pump or chiller unit for information regarding system installation and product application. Note: The term 'heat pump' is used throughout this document and also refers to 'chiller unit' for installations using a chiller system.

MODEL TYPE

Congratulations for choosing a Rheem[®] Tariff Controller. There are 3 types of controllers available which are as follows:

- Rheem Panel Mount Tariff Controller part number 17294 PGD1000F00 that is suitable for either indoor or outdoor installation. IP rating is IP65 White in colour.
- Rheem Wall Mount Tariff Controller part number 17324 PGD1000W00 that is suitable for indoor installation only. IP rating IP40 White in colour.
- Rheem Panel Mount Tariff Controller part number 17497 PGD1000W00 is suitable for either indoor or outdoor installation. IP rating is IP65 Black in colour.

HOW DO I KNOW IF THE CONTROLLER IS INSTALLED CORRECTLY?

Installation requirements are detailed in the 'Installation' section starting on page 18. The controller must be installed:

- by a qualified person, and
- in accordance with these installation instructions, the installation instructions supplied with the heat pump and
- in compliance with Standards AS/NZS 3000, AS/NZS 3500.4, as applicable under local regulations, and all local codes and regulatory authority requirements.
- In New Zealand, the installation must also conform with the New Zealand Building Code.

PRECAUTIONS

If this controller is to be used where uninterrupted heating or cooling is necessary for your application or business, you should ensure that you have back up redundancy within the heating or cooling system design. This should ensure the continuity of heating or cooling in the event that this controller was to become inoperable for any reason. We recommend you seek advice from your installer or specifier about your needs and building back up redundancy into your heating or cooling system.

POWER OUTAGES

If the power supply to the heat pump is interrupted for any reason, the heat pump and controller will shut down and cease to operate.

When power is restored, the heat pump will automatically operate in the last used mode of operation and any settings programmed on the controller will remain unaffected i.e. will be the same values as before the power outage.

CLEANING THE CONTROLLER

If the controller requires cleaning, wipe with a soft dry cloth. If controller buttons require cleaning, ensure the heat pump is turned off at the electrical isolator located adjacent to the heat pump to prevent the inadvertent alteration of controller settings. **Note:** Do not use a cleaning cloth with thinners, benzene, acid or alkaline detergents as these products will discolour the display and plastic components which is not covered by warranty.

WARRANTY

The controller is supported by a manufacturer's warranty providing one year on parts. For more information refer to the Installation Instructions supplied with the heat pump or contact Rheem Thermal Service department on 02 9684 3684. Information is also available on the Rheem Thermal website www.rheemthermal.com.au

GENERAL WARNINGS & SAFETY ADVICE

Warning: For your safety do not operate this controller before reading this instruction booklet.

 \triangle **Warning:** This controller is only intended to be operated by persons who have the experience or the knowledge and the capabilities to do so. This controller is not intended to be operated by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge.

 \triangle Warning: Children should be supervised to ensure they do not interfere or play with the controller.

▲ Warning: For continued safety of this controller it must be installed, operated and maintained in accordance with the Owner's Guide and Installation Instructions.

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. For assistance or additional information consult your Rheem Distributor, qualified Installer, or accredited Service Agent.

The warranty can become void if the installation is not in accordance with these instructions.

- DO NOT use the controller if any part is faulty or damaged. Immediately call Rheem Thermal Service department or an accredited Service Agent to arrange for an inspection.
- DO NOT use the controller if any part has been under water. Immediately call Rheem Thermal Service department or an accredited Service Agent to arrange for an inspection.

HOW YOUR TARIFF CONTROLLER WORKS

Congratulations on your choice of a Rheem Heat Pump Tariff Controller. Rheem is committed to environmental sustainability and continually strives to be innovative in product development to help Australian households reduce their energy usage. Your Rheem heat pump and tariff controller are a strong reflection of this commitment.

The heat pump that you have purchased is designed to be energy efficient and the tariff functionality of the controller enables you to optimise heat pump and recirculating pump operation relative to the price of electricity.

The main energy source for your heat pump is naturally available heat; either from surrounding air, water or from the earth itself. These heat sources are totally renewable and provide up to four fifths of the energy that the heat pump requires to operate. The remaining energy required is supplied by electricity and it is this energy usage that the tariff controller focuses on to enable you to achieve lower heating costs.

The structure and pricing of electricity varies from state to state and supplier to supplier. The simplest pricing structure is a flat rate, however digital metering now allows for off-peak, shoulder and peak-time electricity use tariffs. The pricing structure may also vary according to the time of day or if it is a work day, weekend or public holiday and even in some instances according to the season.

Where electricity has a time of use basis, the opportunity is created to achieve substantial savings in heating costs because the price of electricity in off-peak hours can be less than one quarter of the day peak-time rate!

Control options can be as simple as restricting heat pump operation to off-peak times only or to off-peak and shoulder periods only. The more sophisticated option is to set varying target water temperatures and differentials by time of day and day of the week. This sounds complicated but is easily achieved by following the step by step procedures outlined in the 'Controller Operation' section of these instructions.

The development of this controller included detailed evaluation of all Australian electricity tariffs and some common tariff options are preloaded into the controller. In these instances all that is required is to nominate the target water temperature settings (set point) and differentials for these periods. Programming of every possible tariff option is also readily performed, allowing you to fully customise heat pump and recirculating pump operation both in terms of temperature needs and tariff pricing. This allows you to minimise your running costs while retaining the benefits of your heating or cooling system.

HOW TO SET UP YOUR CONTROLLER

- 1. Read 'Controller Overview' and 'Operation Overview' sections on page 8.
- 2. Set current date and time (refer to 'Setting the Current Date & Time on page 9).
- 3. Set and enable tariffs (refer to 'Programming for Tariff Control' on page 10).
- 4. Set and enable scheduler times if this option is required (refer to 'Programming for Scheduler Control' on page 12).
- 5. Adjust the set point temperature (refer to 'Adjusting the Set point Temperature' on page 13).
- 6. Set the circulating pump control method (Refer to 'Setting the Circulating Pump Control Method' on page 14).
- 7. Turn heat pump ON (refer to 'To Turn the Heat Pump ON by the Keypad' on page 9).

Your heat pump tariff controller has now been configured and will automatically operate according to the settings you have programmed.

SAVE A SERVICE CALL

Check the items below before making a service call. Charges apply for attending to any condition or fault that is not related to manufacture or failure of a part.

Note: The controller and heat pump will have a start delay when turned on. This is normal operation.

Heat Pump or Controller Not Operating

- Is the electricity switched on? If the controller display is blank, ensure power is available and that the heat pump is switched on at the electrical isolator located adjacent to the heat pump.
- Is the heat pump manually turned on at the keypad? Ensure the heat pump is turned ON at the controller keypad (refer to 'To Turn the Heat Pump ON by the keypad' on page 9).
- Is the alarm (A or M) button on the controller flashing red (PGD) or buzzing (PLD) and is a message displayed.
- Refer to 'Troubleshooting' on page 17 if an alarm condition occurs or if a message is displayed on the controller.
- Is the controller programmed correctly? Check to ensure any scheduled and/or tariff time periods are programmed correctly and that 'scheduler' and/or 'tariffs' are enabled. Also check to ensure the set point and differential settings are correct for each period and that the current date and time is correctly set (refer to 'Controller Operation' section on page 8).

HEATER NOT SUFFICIENTLY HEATING

- Is the set point temperature too low? Increase the set point temperature (refer to 'Adjusting the Set point Temperature' on page 13).
- Is the controller programmed correctly? Refer to the same question in the 'Heat Pump or Controller Not Operating' section above.
- Is there excessive heat loss? Swimming pools and spas can benefit from a cover to retain heat when not in use.
- Is the heat pump correctly sized? The sizing guide in the Rheem sales literature and on the Rheem Thermal website (www.rheemthermal.com.au) suggests average sizes that may be needed.

WATER GETS TOO HOT

• Is the set point temperature too high? Decrease the set point temperature (refer to 'Adjusting the Set point Temperature' on pg. 13).

HIGH ELECTRICITY BILLS

Should you at any time feel your electricity account is too high, we suggest you check the following points:

- Consider recent changes in weather or to your heating pattern (such as an increase in heating periods or temperature settings) and check if there has been any increase in tariffs since your previous account.
- Is there excessive heat loss? Swimming pools and spas can benefit from a cover to retain heat when not in use. IF YOU HAVE CHECKED ALL THE ABOVE AND STILL BELIEVE YOU NEED ASSISTANCE, PHONE RHEEM THERMAL SERVICE DEPARTMENT ON 02 9684 3684 OR CONTACT YOUR INSTALLER.

CONTROLLER OVERVIEW



The home screen is the default screen that the controller will display when first powered up and is depicted in the illustration above. The controller will also revert to the home screen if the keypad buttons have been inactive for a period of 60 seconds.

OPERATION OVERVIEW

There are three methods of heat pump control; scheduler, tariffs and keypad control.

- If only 'scheduler' is enabled, the heat pump will operate according to the programmed scheduler ON and OFF time periods to maintain the target set point temperature. Note: When in a scheduler OFF period, the control panel will display 'Unit OFF by SCHEDULE'.
- If only 'tariffs' are enabled, the heat pump will continuously operate according to the programmed tariff settings to maintain the target set point temperature.
- If 'scheduler' and 'tariff' are both enabled, the heat pump will operate according to the programmed scheduler ON and OFF time periods to maintain the target set point temperature according to the programmed tariff settings.

- If 'scheduler' and 'tariff' are both disabled, the heat pump will not operate unless the heat pump is manually turned ON by the keypad at which time the heat pump will continuously operate to maintain the target set point temperature.
- The heat pump must be manually turned ON by the keypad for the heat pump to operate according to the scheduler or tariffs.
- The heat pump can be manually turned OFF by the keypad regardless of programmed scheduler or tariff settings. Note: When manually turned OFF by the keypad, the control panel will display 'Unit OFF by KEYPAD'.

Note: Scheduler time periods and/or tariff periods must be correctly programmed and enabled, the current date and time must be correctly set and the heat pump must be manually turned on by the keypad for the heat pump to be able to operate according to scheduler time periods and/or tariffs.

Going on Holidays?

Your tariff controller can be used to lower the water temperature of your pool or spa while you are away to save running costs. Refer to 'Scheduler Special Event' on page 15.

SETTING THE CURRENT DATE & TIME

The current date and time must be set correctly for the heat pump to be able to operate according to scheduled time periods and/or tariff periods. The time is displayed in 24 hour time.

- 1. Whilst in the home screen, press and release for a . The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until C. Clock/Scheduler is selected.
- 3. Press and release **4**. The **Clock 01** screen will be displayed as shown below.

:: A	Clock 01 Day: Tuesday	1	
· · ·	Date: 19/06/12		1::
•••	Hour: 19:06 enable scheduler: No		
Esc	enable tariff : Yes	1	

- 4. Press and release 🕊 to move the cursor to the value to be changed.
- 5. Press and release \uparrow or \checkmark until the desired setting is displayed.
- 6. Repeat steps 4 and 5 until all required changes have been made then proceed to step 7.
- 7. Press and release ∉ to confirm the selection. The screen will change back to the home screen and the setting will be saved.

TO TURN THE HEAT PUMP ON BY THE KEYPAD

Perform the following procedure to turn the heat pump ON.

- 1. Whilst in the home screen, press and release *sc* or . The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until A. On/Off Unit is selected.
- 3. Press and release ∉. The screen will change to show 'OFF'.

- 4. Press and release ✓. The 'O' in 'OFF' will start flashing.
- 5. Press and release ↑ or ↓. The screen will change to show 'ON' with the 'O' flashing.
- 6. Press and release ∉ to confirm the selection. The 'O' in 'ON' will stop flashing and the heat pump will be turned ON.
- 7. Press and release **Esc** or **S** twice to go back to the home screen.

TO TURN THE HEAT PUMP OFF BY THE KEYPAD

Perform the following procedure to turn the heat pump OFF.

- 1. Whilst in the home screen, press and release *Esc* or **S**. The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until A. On/Off Unit is selected.
- 3. Press and release ✓. The screen will change to show 'ON'.
- 4. Press and release ∉. The 'O' in 'ON' will start flashing.
- 5. Press and release ↑ or ↓. The screen will change to show 'OFF' with the 'O' flashing.
- 6. Press and release < to confirm the selection. The 'O' in 'OFF' will stop flashing and the heat pump will be turned OFF.
- 7. Press and release **Esc** or **Solution** twice to go back to the home screen.

PROGRAMMING FOR TARIFF CONTROL

When the controller has been programmed and enabled for tariff control, the heat pump will operate according to the programmed tariffs provided the heat pump is manually turned ON by the keypad.

There are two methods of programming for tariff control. 'Programming Default Tariff Settings' or 'Programming Tariff Settings Manually'.

Note: The current date and time must be set correctly for the heat pump to be able to operate according to programmed tariffs and if the scheduler is enabled, the scheduler must be in a current ON period.

Programming Default Tariff Settings

Programming default tariff settings loads and enables the default tariff settings preloaded into the controller.

- 1. Whilst in the home screen, press and release *sc* or . The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until C. Clock/Scheduler is selected.
- 3. Press and release ∠. The Clock 01' screen will be displayed. If 'enable tariff' is already set to 'Yes' proceed directly to step 7. If 'enable tariff' is set to 'No' proceed to step 4.
- 4. Press and release 🕊 until the curser selects 'enable tariff: No'.
- 5. Press and release \uparrow or \checkmark to change to 'Yes'.
- 6. Press and release 🕊 until the curser disappears.
- 7. Press and release ↑ or ↓ until the screen changes to the Tariff Timeband 05' screen shown below.

::	A	Tariff Timeband Load default for	85 No	+	•••
11	Prg	QLD:	No	4	1::
		Custom:	No		

- 8. Press and release ≤ until the curser selects the desired state. Note: 'Custom' is for future expansion and although default settings are loaded they are not currently valid.
- 9. Press and release ↑ or ↓ to change to 'Yes'.
- 10. Press and release < to confirm the selection. **DEFAULT LOADED** should appear on the bottom of the screen when the default tariff settings have been loaded.
- 11. Press and release **Esc** or **S** twice to go back to the home screen.

Programming Tariff Settings Manually

Programming tariff settings manually enables you to tailor tariff settings according to your local area or energy supplier if the tariff time periods differ to the default tariff settings.

- 1. Whilst in the home screen, press and release *Esc* or **S** . The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until C. Clock/Scheduler' is selected.
- 3. Press and release ∠. The Clock 01' screen will be displayed. If 'enable tariff' is already set to 'Yes' proceed directly to step 7. If 'enable tariff' is set to 'No' proceed to step 4.
- 4. Press and release 🕊 until the curser selects 'enable tariff: No'.
- 5. Press and release ↑ or ↓ to change to 'Yes'.
- 6. Press and release 🕊 until the curser disappears.
- 7. Press and release ↑ or ↓ until the screen changes to the 'Tariff Timeband' screen that you would like to change a period for. There are four of these screens (PM Week-end, AM Week-end, PM Weekday and AM Weekday).



- 8. Press and release ∉ until the curser selects the desired hour period to be changed (each letter on the clock represent one hour).
- 9. Press and release ↑ or ↓ to change the selected hour to the desired tariff type (Shoulder, Off-peak or Peak).
- 10. Press and release < to confirm the selection.

- 11. Perform steps 8 ~ 10 until all time periods have been changed to the desired tariff types.
- 12. Perform steps 7 ~ 11 for all four Tariff Timeband' screens.
- 13. Press and release *Esc* or **S** twice to go back to the home screen.

For example: In the screen illustration shown above, the three 'P' hours represent a peak period from 6:00am to 9:00am for all weekdays.

PROGRAMMING FOR SCHEDULER CONTROL

When the controller has been programmed and enabled for scheduler control, the heat pump will operate according to the programmed scheduler ON and OFF time periods provided the heat pump is manually turned ON by the keypad.

Note: The current date and time must be set correctly for the heat pump to be able to operate according to scheduler time periods.

- 1. Whilst in the home screen, press and release *sc* or . The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until C. Clock/Scheduler' is selected.
- 3. Press and release
 Yes' proceed directly to step 7. If 'enable scheduler' is already set to 'Yes' proceed directly to step 7. If 'enable scheduler' is set to 'No' proceed to step 4.
- 4. Press and release 🕊 until the curser selects 'enable scheduler: No'.
- 5. Press and release \uparrow or \checkmark to change to 'Yes'.
- 6. Press and release 🕊 until the curser disappears.
- 7. Press and release ↑ or ↓ until the screen changes to the 'Clock Schedule' screen as depicted in the following illustration.



- 8. Press and release 🕊 until the curser selects the desired day/time ON period to be set.
- 9. Press and release 1 or 1 to change the selected day/time/ period to the ON time required.
- 10. Press and release 🕊 until the curser selects the desired day/time OFF period to be set.
- 11. Continue performing steps 8 ~ 10 for all day ON and OFF time periods required.
- 12. Press and release *Esc* or **S** twice to go back to the home screen.

For example: MON 07:00 to 17:30 would represent an ON time of 7:00 am and an OFF time of 5:30 pm on Mondays.

ENABLING OR DISABLING SCHEDULER AND/OR TARIFFS

Refer to 'Operation Overview' on page 8 for various scheduler and tariff control methods to determine enabling/disabling requirements. Disabling the scheduler and/or tariffs will not clear any programmed scheduler time periods or tariffs, only disable their operation until they are enabled again.

Note: Scheduler time periods and/or tariff periods must be correctly programmed and enabled, the current date and time must be correctly set and the heat pump must be manually turned on by the keypad for the heat pump to be able to operate according to scheduler time periods and/or tariffs.

Scheduler time periods and/or tariffs periods can be enabled or disabled as follows:

- 1. Whilst in the home screen, press and release *Esc* or **S** . The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until C. Clock/Scheduler' is selected.
- 3. Press and release \blacktriangleleft . The 'Clock 01' screen will be displayed.
- 4. Press and release < until the cursor selects 'enable scheduler' or 'enable tariff'.
- 5. Press and release \uparrow or \checkmark until the desired setting (Yes or No) is displayed.
- 6. Press and release the 🕊 button to confirm the selection.
- 7. Press and release **Esc** or **b** twice to go back to the home screen.

ADJUSTING THE SETPOINT TEMPERATURE

The 'Set point temperature' is the target temperature for the heat pump to operate to.

There are two methods for adjusting the set point temperature depending whether tariffs are enabled or disabled (for information on enabling or disabling tariffs, refer to 'Enabling or Disabling Scheduler and/or Tariffs' detailed above). The set point can be adjusted with tariffs enabled or disabled as follows:

Adjusting the Set point Temperature with Tariffs Disabled

- 1. Whilst in the home screen, press and release *Prg* or <a>Imspect or <a=Imspect or <a>Imspect or <a=Imspect or <a>Imspect or <a=Imspect or <a>Imspect or <a=Imspect or <a=Imspect or <a=Imspect or <a>Imspect or <a=Imspect or <a=Imspect or <a>Imspect or <a=Imspect or <a=Imspect or <a=Imspect or <a=Imspect or <
- 2. Press and release \uparrow or \checkmark until the desired set point temperature is displayed.
- 3. Press and release ∉ to confirm the selection. The screen will change back to the home screen and the setting will be saved.

Adjusting the Set point Temperature with Tariffs Enabled

When tariffs are enabled there are two types of settings that need to be set; the set point temperature and the proportional band (differential).

The 'Set point temperature' is the target temperature for the heat pump to operate to. The proportional band is the change in temperature away from the set point before the heat pump will come on.

For example: If the heat pump has a set point of $30 \,^{\circ}$ C and a proportional band of $0.5 \,^{\circ}$ C, the heat pump will come on if the water temperature falls below $29.5 \,^{\circ}$ C and turn off when the water temperature reaches $30 \,^{\circ}$ C.

It is recommended to keep the same set point for each tariff time period and the proportional bands at $0.5 \,^{\circ}$ C for off-peak periods, $1.0 \,^{\circ}$ C for shoulder periods and $2.0 \,^{\circ}$ C for peak periods. The larger proportional band for peak periods will delay the onset of the heat pump which will save power consumption during these more expensive operating periods.

- 1. Whilst in the home screen, press and release *Prg* or **o** . The screen will change to show 'Set point Tariff 0X' (where X is the tariff period number).
- 2. Press and release \uparrow or \checkmark to navigate to the desired tariff period.
- 3. Press and release < to confirm the selection. The set point value will start flashing.

- 4. Press and release ↑ or ↓ until the desired set point temperature is displayed.
- 5. Press and release *t* to confirm the selection. The proportional band value will start flashing.
- 6. Press and release ↑ or ↓ until the desired proportional band value is displayed.
- 7. Press and release 🕊 to confirm the selection. The proportional band value will stop flashing and the settings will be saved.
- 8. Perform steps 2 ~ 7 for all other available tariff periods then proceed to step 9.
- 9. Press and release *Esc* or **S** once to go back to the home screen.

SETTING THE CIRCULATING PUMP CONTROL METHOD

The circulating pump control method setting is utilised to control operation of the system water pump(s) and should be set at time of installation by the Installer. This setting does not normally require changing.

If set on 'PERMANENT', the water pump(s) will always be ON or controlled externally of the heat pump.

If set on 'CYCLE TO TEST TEMP', the water pump(s) will automatically turn OFF after the heat pump has reached the set temperature. When on this setting the water pump(s) will also be automatically turned ON after the temperature test cycle time setting so that the heat pump can check the current water temperature. This setting is the most economical if the water pump(s) are to be controlled by the heat pump.

If set on 'AUTOMATIC ON TEMP', the water pump(s) will automatically turn OFF after the heat pump has reached the set temperature. When the heat pump senses the temperature has dropped to the cut in temperature the heat pump will turn the water pump and start the unit.

- 1. Whilst in the home screen, press and release *Esc* or **S** . The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until A. On/Off Unit is selected.
- 3. Press and release ∉. The screen will change to show 'ON' or 'OFF'.
- 4. Press and release ↑ or ↓. The screen will change to show 'Type of circulating pump control' and the current setting.
- 5. Press and release *C*. The first letter in the current setting will start flashing.
- 6. Press and release \uparrow or \checkmark until the desired setting is displayed.
- 7. Press and release \leftarrow to confirm the selection. If 'PERMANENT' was selected, the setting has now been saved and you must proceed directly to step 10. If 'CYCLE TO TEST TEMP' was selected, proceed to step 8.
- 8. The first digit in the 'temp test cycle' time will now be flashing. Press and release ↑ or ↓ until the desired time setting is displayed. The time setting can be changed in 0.5 hour increment from 0.0 to 5.0 hours.
- 9. Press and release \checkmark to confirm the time selection. The first digit in the 'temp test cycle' time will stop flashing and the setting will be saved.
- 10. Press and release *sc* or *twice* to go back to the home screen.

ALARM INDICATION

When using a PGD100F00 OR PGD100W00 displays if the system detects an alarm condition, the alarm button \square will illuminate and flash red.

When using a PLD00GFP00 display if the system detects an alarm condition an audible alarm will sound. Press A the button to view the fault

- 1. Press and release a or display the active alarm condition. The controller will display the active alarm fault message (refer to 'Troubleshooting' on page 17 for a detailed list of all available alarm messages and their meanings).
- 2. Press and hold is or in for 2 seconds to clear the active alarm. If the alarm condition has cleared, the alarm button will extinguish and the heater will resume normal operation. Note: If the alarm condition is still present the alarm will immediately reactivate.
- 3. Press and release *Esc* or **S** once to go back to the home screen.

Viewing Alarm History

All alarm conditions are logged in the controller's data logger which can log up to 150 alarm conditions including information such as alarm type, date and time and various system temperatures taken at the time the alarm condition occurred. Each alarm condition is numbered in the top left hand corner in chronological order. i.e. #01, #02 etc. where #02 was the last occurring alarm condition. To view the alarm history, perform the following procedure:

- 1. Whilst in the home screen, press and release *Esc* or *Solary*. The screen will change to the 'Main menu'.
- 2. Press and release ↑ or ↓ until E. Alarm History is selected.
- 3. Press and release ∉.or S The screen will change to show the last occurring (or last viewed) alarm condition along with relevant alarm information. Each condition is numbered in the top left hand corner in chronological order. i.e. #01, #02 etc. where #02 was the last occurring alarm condition.
- 4. Press and release ↑ or ↓ to navigate through the alarm history one alarm condition at a time. Pressing and holding ↓ or ↓ will quickly navigate through the history.
- 5. Press and release *fsc* or *twice* to go back to the home screen.

SCHEDULER SPECIAL EVENT (FOR WHEN GOING ON HOLIDAYS)

If the premises will be vacant for a period of time, the controller can be programmed to reduce the set point temperature and proportional band (differential) during the vacant period to save on running costs. This method is preferable to turning the heat pump OFF because reheating a pool or spa from a cold start requires more energy. Note: For vacant periods of 4 weeks or more it is more economical to turn the heat pump off while you are away.

As a guide, Rheem recommends reducing the set point temperature to $20 \,^{\circ}$ C and the proportional band (differential) to $3 \,^{\circ}$ C from when the premises will be vacant until 3 days before the premises will be occupied again. This will allow 3 days for the system to return to the normal set point temperature (this period could be reduced to 1 day for small spas).

- 1. Whilst in the home screen, press and release **Esc** or **S** the screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until C. Clock/Scheduler is selected.
- 3. Press and release <. The Clock 01' screen will be displayed.
- 4. Press and release ↑ or ↓ until the Clock Schedule 03' screen is displayed.
- 5. Press and release ∉. The curser will be on 'Special Event' 'Yes' or 'No'.
- 6. Press and release \uparrow or \checkmark to select 'Yes'.
- 7. Press and release 🕊 to confirm the selection.
- 8. Continue using < to navigate through the remaining settings and continue using or ↓ to change the remaining settings to the required values.

- 9. When the differential has been set, Press and release *✓*. The curser will disappear and the settings will be saved.
- 10. Press and release **Esc** or **b** twice to go back to the home screen.

TROUBLESHOOTING

If the system detects an alarm condition, on the PGD display the alarm button (A) will illuminate and flash red. A message may also be displayed on the controller indicating an error condition. On the PLD controller an audible signal will sound

Problem	Possible Cause	Checks	Action
	Heat Pump is turned OFF	Home screen reads 'Unit OFF by KEYPAD'	Turn heat pump on (page 9)
		Home screen reads 'Unit OFF by SCHEDULE'	Check to ensure time is correctly set (page 9)
	Heat Pump is OFF by scheduler		Check to ensure scheduler is correctly set (page 12)
			Disable scheduler if not required (page 12)
	Heat Rump is OFF by digital input	Home careen reade 'Unit OFE by DEMOTE in'	Turn remote input ON
Heat pump not running	Heat Fullip is OFF by digital linput	Home screen reads only OFF by REMOTE III	or contact installer
	Heat Pump is OFF by supervisor	Home screen reads 'I Init OFF by SLIPERVISOR'	BMS OPERATION
		Thome screen reads only of T by SOI Envisor	or contact installer
	Heat Pump has reached set point	Check temperature on control panel display	No action required.
	Pump has cycled OFF after	Check temperature on control panel display	No action required
	reaching set point		
Alarm – Flow Switch	Pump not operating	Check to ensure pump is operating	I urn pump ON and clear alarm (page 14)
	Blockage in water system	Check for obstructions at inlets, outlets, filters etc.	Clear obstructions and clear alarm (page 14)
	Blockage in water system	Check for obstructions at inlets, outlets, filters etc.	Clear obstructions and clear alarm (page 14)
	Fouled heat exchanger		Contact installer
	Dirty coll (chiller units only)	Outdoor unit is dirty or dust has built up around	Turn OFF power and hose down outside unit
Alarm – High Pressure		coil	(page 14)
Safety	Faulty fan(s)	Check to ensure both fans are spinning in the	Contact installer
		same direction and speed	
	Ambient temperature too high	Wait for outside temperature to drop	Clear alarm (page 14)
	(chiller units only)		
	Incorrect refrigerant charge		Contact installer
	Incorrect de-ice function or	lce buildup on unit	Contact installer
Alarm – Low Pressure	refrigerant gas leak		
Safety	Probe faulty or probe wiring is open or short circuit	No temperature reading on control panel display	Contact installer
Alarm – Probe fault	Probe faulty	No temperature reading on control panel display	Contact installer

IF YOU HAVE CHECKED ALL THE FOREGOING AND STILL BELIEVE YOU NEED ASSISTANCE, PHONE RHEEM THERMAL SERVICE DEPARTMENT ON 02 8706 8400 OR CONTACT YOUR INSTALLER.

INSTALLATION

INTRODUCTION & PRODUCT APPLICATION

This tariff controller is provided as part of a heat pump or chiller system and this document pertains to the installation, operation and programming of the wall or panel mount controller only. Refer to the Owners Guide and Installation Instructions supplied with the heat pump or chiller unit for information regarding system installation and product application. Note: The term 'heat pump' is used throughout this document and also refers to 'chiller unit' for installations using a chiller system.

PRECAUTIONS

If this controller is to be used where uninterrupted heating or cooling is necessary for your application or business, you should ensure that you have back up redundancy within the heating or cooling system design. This should ensure the continuity of heating or cooling in the event that this controller was to become inoperable for any reason. We recommend you seek advice from your installer or specifier about your needs and building back up redundancy into your heating or cooling system.

INSTALLATION STANDARDS

The controller must be installed:

- by a qualified person, and
- in accordance with these installation instructions, the installation instructions supplied with the heat pump and
- In compliance with Standards AS/NZS 3000, AS/NZS 3500.4, as applicable under local regulations, and all local codes and regulatory authority requirements.
- In New Zealand, the installation must also conform with the New Zealand Building Code.

MODEL TYPE

These are three types of controllers available which are as follows:

- Rheem Panel Mount Controller PGD1000F00 17294 that is suitable for either indoor or outdoor installation.
- Rheem Wall Mount Controller PGD1000W00 17324 that is suitable for indoor installation only.
- Rheem Panel Mount Controller PLD00GFP00 17497 that is suitable for either indoor or outdoor installation.



Panel Mount Controller (IP65)







RS485 Connection on rear

Wall Mount Controller (IP40)

PLD00GFP00 CONTROLLER.



FASCIA REMOVAL FOR PGD MODELS

- 1. Using a small flat bladed screwdriver, locate screwdriver blade in small recess under bottom edge of fascia and flick fascia away from controller.
- 2. To reassemble, locate fascia over controller so that bottom edge is in position, then push top edge of fascia until fascia clicks into position.

CONTROLLER INSTALLATION PROCEDURE FOR PGD1000F00

Note: When installing a panel mount controller in an outdoor position, ensure the controller IP rating is maintained (IP65) i.e. the enclosure in which the controller is mounted must have a suitable IP rating. Water damage to the controller is not covered by warranty if the IP rating of the installation is not maintained.

- 1. Determine controller location taking into consideration the maximum cable length of 30 metres using telephone cabling. Note: For cable lengths greater than 30 metres and up to 200 metres AWG24 shielded cable can be used.
- 2. For panel mount controller, mark and perform cut out according to the template shown below. For wall mounted controllers, skip this step.



- 3. Connect cable to rear of controller.
- 4. Mount controller using screws provided or suitable fixing hardware.

CONTROLLER INSTALLATION PROCEDURE FOR PLD00GFP00

Note: When installing a panel mount controller in an outdoor position, ensure the controller IP rating is maintained (IP65) i.e. the enclosure in which the controller is mounted must have a suitable IP rating. Water damage to the controller is not covered by warranty if the IP rating of the installation is not maintained.

Determine controller location taking into consideration the maximum cable length of 50 metres using telephone cabling. Note: For cable lengths greater than 50 metres and up to 500 metres AWG22 shielded cable can be used.

For panel mount controller PLD00GFP00, mark and perform cut out according to the template shown below.



pLAN connection on rear.

CONTROLLER SETUP PROCEDURE

Perform the following procedure to program controller settings according the type of installation and customer requirements (refer to 'Controller Overview' on page 8 for a depiction of the controller and home screen if required):

- 1. Perform initial system setup if required (refer to 'Initial System Setup' on page 21). *Note: The initial setup is normally factory set and this step is only required to be performed for advanced systems that require customisation.* Skip this step for all standard models.
- 2. Set current date and time (refer to 'Setting the Current Date & Time on page 9).
- 3. Set and enable tariffs (refer to 'Programming for Tariff Control' on page 10).
- 4. Set and enable scheduler times if this option is required (refer to 'Programming for Scheduler Control' on page 12).
- 5. Adjust the setpoint temperature (refer to 'Adjusting the Setpoint Temperature' on page 13).
- 6. Set the circulating pump control method (refer to 'Setting the Circulating Pump Control Method' on page 14).
- 7. Set the flow switch control method (refer to 'Enable Unit ON / OFF by Flow Switch' on page 36.
- 8. Turn heat pump ON (refer to 'To Turn the Heat Pump ON by the Keypad' on page 9) and commission heat pump or chiller unit (refer to the installation instructions supplied with the heat pump or chiller unit for commissioning procedure).
- 9. Check system and validate correct operation.
- 10. Explain control panel operation to the customer.
- 11. Leave these instructions with the householder or responsible officer.

A Warning: All procedures detailed in this section must only be performed by a qualified person.

INITIAL SYSTEM SETUP PROCEDURE

Note: The initial system setup procedure is normally factory set and this procedure is only required to be performed for advanced systems that require customisation.

While performing the following procedures, use the \mathbf{M} or \mathbf{V} buttons to set values.

- 1. Set the address (refer to 'Step 1 Setting the Address' below).
- 2. Set configuration 01 screen parameter settings (refer to page 21).
- 3. Set configuration 03 ~ 06 screen parameter settings (refer to page 22).
- 4. Check Config.EVO screen parameter settings (refer to page 23). Skip this step if an electronic expansion valve is not installed.
- 5. Set I/O Config 01 ~ 14 Screen Parameter Settings (refer to page 26).
- 6. If the system has more than one compressor, set the parameter settings for each additional slave compressor (refer to page 26). Skip this step if the system has only one Heat Pump with one compressor.
- 7. Perform steps 2 ~ 11 of 'Controller Setup Procedure' on page 20.

Step 1 – Setting the Address

- 1. Power up the unit. The controller will display the home screen.
- 2. Simultaneously press and hold \uparrow , \checkmark and \checkmark for 5 seconds to enter the setup menu.
- 3. Press and release 🕊 to move curser to 'Display address setting' and set to '32'.
- 4. Press and release ∉ to move curser to 'I/O board address' and set to '01'.
- 5. Press and release 🕊 to navigate to the terminal config screen.
- 6. Press and release ∉ to move curser to 'trm1' and set to '32'.
- 7. Press and release 🕊 to move curser to the next position and set to 'sh'.
- 8. Press and release 🕊 to move curser to 'trm2' and set to 'None'.
- 9. Press and release 🕊 to move curser to the next position and set to '--'.
- 10. Press and release 🕊 to move curser to 'trm3' and set to 'None'.
- 11. Press and release 🕊 to move curser to the next position and set to '--'.
- 12. Press and release 🕊 to move curser to the next position and set to 'Yes'.
- 13. Press and release \leftarrow to confirm settings. The screen will change to the home screen and step 1 settings will be saved.

Step 2 – Setting Configuration 01 Screen Parameter Settings

Refer to the relevant 'Manufacturer Screen Parameter Settings' table for appropriate parameter values according to the model Heat Pump installed. Tables start on page 28.

- 1. Whilst in the home screen, press and release **Esc** or **S**. The screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until 'H. Manufacturer' is selected.

- 3. Press and release ∉ and enter the four digit password '2170' (Set first digit then press ∉ to move to the next digit etc). When the last digit has been set press and release ∉.
- 4. Press and release ↑ or ↓ until 'a. Configuration' is selected.
- 5. Press and release 🕊 to navigate to 'Configuration 01' screen.
- 6. Press and release < to move curser to 'Model' and set to appropriate model as follows:

Model	Description
A2WHH	Air to Water Heat Pump with Hot Gas De-Ice
A2WHR	Air to Water Heat Pump with Reverse Cycle De-Ice
A2WHC	Air to Water Heat and Cool
A2WC	Air to Water Chiller
REMOTE	Other controls such as AC1 or Saginomiya De-Ice will control unit main functions
W2WH	Water to Water Heat Pump
W2WHC	Water to Water Heat and Cool
W2WC	Water to Water Chiller

- 7. Press and release < to move curser to 'No.Compressors' and set to the appropriate number of compressors.
- 8. Press and release 🕊 to move curser to 'Reverse cycle' and set to the appropriate value.
- 9. Press and release 🕊 to move curser to 'Defrost type' and set to the appropriate value.
- 10. Press and release ✓. The curser will disappear.
- 11. Press and release **Esc** or **three** times to go back to the home menu. The screen will change to the home screen and step 2 settings will be saved.

Step 3 – Setting Configuration 03 ~ 06 Screen Parameter Settings

Refer to the relevant 'Manufacturer Screen Parameter Settings' table for appropriate parameter values according to the model Heat Pump installed. Tables start on page 28.

- 1. Whilst in the home screen, press and release *sc* or *sc*. The screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until H. Manufacturer is selected.
- 3. Press and release ← and enter the four digit password '2170' (Set first digit then press ← to move to the next digit etc). When the last digit has been set press and release ←. Note: This step will not occur if the password has been previously entered within 10 minutes.
- 4. Press and release \uparrow or \checkmark to until 'a. Configuration' is selected.
- 5. Press and release 🕊 to navigate to navigate to 'Configuration 01' screen.
- 6. Press and release **↓** to navigate to 'Configuration 03' screen.
- 7. Use ← to move curser and use ↑ or ↓ to set values for all 'Configuration 03' screen parameter settings.
- 8. Press and release 🕊 until the curser disappears.
- 9. Press and release \mathbf{V} to navigate to the next configuration screen.
- 10. Repeat steps 7 ~ 9 to set parameter values for all remaining configuration screens. When all configuration screen parameter values have been set, proceed to step 11. Note: When setting 'Configuration 05' and 'Configuration 06' parameter settings using a *pressure transducer*, refer to 'LP & HP Pressure Sensor Parameter Settings Tables' on page 23 for indicative pressure settings (pressure settings are not required if using a *pressure switch*).
- 11. Press and release **Esc** or **S** three times to go back to the home menu. The screen will change to the home screen and step 3 settings will be saved.

LP & HP Pressure Sensor Parameter Settings Tables

The following table details indicative parameter settings when configuring 'Configuration 05 > L.P. Safety Device Type > Pressure Sensor' (transducer) parameter settings.

Low Pressure Sensor (Transducer) Settings					
Refrigerant	Trip Setpoint (kPa) Differential (kPa) Trip Set Low (kPa) Trip Set H				
R134a	35	138	25	2800	
R407c	35	138	25	3600	
R410a	170	172	150	4300	

The following table details indicative parameter settings when configuring 'Configuration 06 > H.P. Safety Device Type > Pressure Sensor' (transducer) parameter settings.

High Pressure Sensor (Transducer) Settings				
Refrigerant	gerant Trip Setpoint (kPa) Differential (kPa) Trip Set Low (kPa) Trip Set H			
R134a	2750	690	25	2800
R407c	3585	690	25	3600
R410a	4275	690	150	4300

Step 4 – Configuring Electronic Expansion Valve Settings (EVO. Config Screen)

This step is performed only if the system has an electronic expansion valve installed.

Note: The 'EVO. Config' screen is only present if 'H.Manufacturer > Configuration 03 > Electronic Expansion Valve Fitted' = Yes, in which case all EVO Config screen parameter settings will be automatically populated with the default settings which are the required settings for all models.

Refer to 'EVO Config Parameter Settings Table' on page 25 for a list of all EVO Config parameters and their required (default) settings for all models except for 'Remote' models which do not have the EVO Config function.

EVO Config parameter settings can be checked or configured by performing the following procedure:

- 1. Whilst in the home screen, press and release **Esc** or **S**. The screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until 'H. Manufacturer' is selected.
- 3. Press and release *←* and enter the four digit password '2170' (Set first digit then press *←* to move to the next digit etc). When the last digit has been set press and release *←*. Note: This step will not occur if the password has been previously entered within 10 minutes.
- 4. Press and release \uparrow or \checkmark until 'a. Configuration' is selected.
- 5. Press and release 🕊 to navigate to 'Configuration 01' screen.
- 6. Press and release \uparrow or \checkmark to navigate to 'EVO. Config' screen.
- 7. Press and release 🕊 to enter EVO. Config screen.
- 8. Press and release \uparrow or \checkmark until 'a. Configuration' is selected.
- 9. Press and release 🕊 to navigate to 'EVO Config Valve' screen.
- 10. Use ≤ to move curser and use or to set value for 'EVO Config Valve' screen parameter setting.
- 11. Press and release 🕊 until the curser disappears.
- 12. Press and release **↓** to navigate to the next EVO Config screen.
- 13. Repeat steps 10 ~ 12 to set parameter values for all remaining EVO Config screens. When all EVO Config screen parameter values have been set, proceed to step 14.
- 14. Press and release *Esc* or **S** once. The screen will change to 'Manufacturer'.

- 15. Press and release ↑ or ↓ until b. Regulation' is selected.
- 16. Press and release 🕊 to navigate to 'EVO Regulation' screen.
- 17. Use ✓ to move curser and use or to set value for 'EVO Regulation' screen parameter setting.
- 18. Press and release 🕊 until the curser disappears.
- 19. Press and release **↓** to navigate to the next EVO Regulation screen.
- 20. Repeat steps 17 ~ 19 to set parameter values for all remaining EVO Regulation screens. When all EVO Regulation screen parameter values have been set, proceed to step 21.
- 21. Press and release for once. The screen will change to 'Manufacturer'.
- 22. Press and release \uparrow or \checkmark until 'c. Custom' is selected.
- 23. Press and release 🕊 to navigate to 'Valve Custom' screen.
- 24. Use ✓ to move curser and use ↑ or ↓ to set values for 'Valve Custom' screen parameter settings.
- 25. Press and release 🕊 until the curser disappears.
- 26. Press and release Press and release \blacksquare to navigate to the next Valve Custom screen.
- 27. Repeat steps 24 ~ 26 to set parameter values for all remaining Valve Custom screens. When all EVO Regulation screen parameter values have been set, proceed to step 28.
- 28. Press and release *Esc* or five times to go back to the home menu. The screen will change to the home screen and step 4 settings will be saved.

EVO Config Parameter Settings Table

H.Manufacturer > a.Configuration > EVO Config.

EVO Config Screen	Parameter / Su	b Parameter	Required (Default) Setting – All Models (1)
	Valve:		Carel E2V
	Main Regulation:		AC or Chiller with Plate Evaporator
	Auxiliary Regulation:		High Condensing Temp. Protection on S3
		Alarm:	EN
		Type:	RAZ. 0 - 5V
		Min:	0.0barg
	Probe S1	Max:	17.3barg
		Alarm Min:	0.0barg
		Alarm Max:	17.3barg
		Alarm:	EN
		Type:	Carel NTC
	Probe S2	Alarm Min:	-25.0℃
		Alarm Max:	70.0℃
a. Configuration		Alarm:	DIS.
<u> </u>		Type:	BAZ. 0 - 5V
		Min:	0.0barg
	Probe S3	Max:	17.3barg
		Alarm Min:	0.0barg
		Alarm Max:	17.3barg
		Alarm:	DIS.
		Type:	Carel NTC
	Probe S4	Alarm Min:	-50.0°C
		Alarm Max:	105.0 °C
	S1 Probe Alarm Manag.:		Valve Forced Closed
	S2 Probe Alarm Manag		Valve Forced Closed
	S3 Probe Alarm Manag.:		Valve Forced Closed
	S4 Probe Alarm Man	ag.:	No Action
	Valve Opening at sta	rt-up:	50%
	Valve Opened in star	nd-bv:	Yes
	Prepositioning Delay		65
		Prop. Gain	3.0
	PID Parameters	Integral Time	40s
		Derivat.Time	1.0s
		LowSH Protect.:	2.5s
	Integral Time	LOP Protection:	4.0s
b. Regulation		MOP Protection:	10.0s
		Threshold	65.0 ℃
	High Cond.	Integr. Time:	20.0s
	Temperature	Alarm Timeout	20s
		LowSH:	120s
	Alarm Delay	LOP:	240s
	,	MOP:	240s
	Alarm Low Suction	Threshold:	-10.0℃
	Temperature	Timeout:	15s
	Min.Steps:		50
	Max.Steps:		480
	Closing steps:		500
	Nom.Step Rate:		50Hz
c. Custom	Fast step Rate:		50Hz
	Holding Current:		0mA
	Duty Cycle:		30%
	Opening Synchr.:		Yes
	Closing Synchr.:		Yes

⁽¹⁾ All models except for 'Remote' models which do not have the EVO Config function.

Step 5 – Setting I/O Config 01 ~ 14 Screen Parameter Settings

Refer to the relevant 'Manufacturer Screen Parameter Settings' table for appropriate parameter values according to the model Heat Pump installed. Tables start on page 28.

- 1. Whilst in the home screen, press and release *sc* or *sc*. The screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until 'H. Manufacturer' is selected.
- 3. Press and release ← and enter the four digit password '2170' (Set first digit then press ← to move to the next digit etc). When the last digit has been set press and release ←. Note: This step will not occur if the password has been previously entered within 10 minutes.
- 4. Press and release ↑ or ↓ until b. I/O Configuration is selected.
- 5. Press and release 🕊 to navigate to 'I/O Config 01' screen.
- 6. Use ≤ to move curser and use or to set values for all 'I/O Config 01' screen parameter settings.
- 7. Press and release 🕊 until the curser disappears.
- 8. Press and release \mathbf{I} to navigate to the next configuration screen.
- 9. Repeat steps 6 ~ 8 to set parameter values for all remaining I/O Config screens. When all I/O Config screen parameter values have been set, proceed to step 10.
- 10. Press and release **Esc** or **Solution** three times to go back to the home menu. The screen will change to the home screen and step 5 settings will be saved.

Step 6 – Setting Parameter Settings for Each Additional Slave Compressor

If the system has more than one compressor, the parameter settings for each additional slave compressor must be set after selecting the relevant slave via the controller's 'Board switch' screen. **Note:** Do not perform this step if the system has only one Heat Pump with one compressor.

Compressor Number	Allocation	Board Switch 'Switch to unit' value
1	Master	1
2	Slave 1	2
3	Slave 2	3
4	Slave 3	4

Changing the board switch 'Switch to unit' value from 1 to 2, 3 or 4 causes the controller to switch from the master to the selected slave. The controller will then display and permit configuration of the selected slave's parameter settings.

- Controller master parameter settings **MUST** be configured before setting parameter settings for slaves.
- 'Configuration 01', 'Configuration 04', I/O Config 08' and 'I/O Config 09' parameter settings are based on the previously programmed settings for the master and are not available for slaves.

The following procedure details how to set parameters for systems with 2, 3 or 4 slave compressors:

- 1. Whilst in the home screen, press and release *Esc* or **S** . The screen will change to the 'Main menu' screen.
- 2. Press and release \uparrow or \checkmark until 'F. Board switch' is selected.
- 3. Press and release < to navigate to navigate to 'Board switch' screen.
- 4. Press and release ∉ to move curser to 'Switch to unit' and set to '2'.

- 5. Press and release ✓. The screen will change to the home screen. The controller will now only access and display slave 1 (compressor 2) information.
- 6. Set configuration 03 ~ 06 screen parameter settings for slave 1 (refer to page 22).
- 7. Set Config.EVO screen parameter settings for slave 1 (refer to page 23). Skip this step if an electronic expansion valve is not installed.
- 8. Set I/O Config 01 ~ 14 screen parameter settings for slave 1 (refer to page 26).
- 9. Continue according to the relevant number of system compressors as follows:
 - If the system has 2 compressors, proceed directly to step 27.
 - If the system has 3 or 4 compressors, proceed to step 10.
- 10. Whilst in the home screen, press and release *sc* or *sc* . The screen will change to the 'Main menu' screen.
- 11. Press and release \uparrow or \checkmark until 'F. Board switch' is selected.
- 12. Press and release < to navigate to navigate to 'Board switch' screen.
- 13. Press and release 🕊 to move curser to 'Switch to unit' and set to '3'.
- 14. Press and release ∉. The screen will change to the home screen. The controller will now only access and display slave 2 (compressor 3) information.
- 15. Set configuration 03 ~ 06 screen parameter settings for slave 2 (refer to page 22).
- 16. Set Config.EVO screen parameter settings for slave 2 (refer to page 23). Skip this step if an electronic expansion valve is not installed.
- 17. Set I/O Config 01 ~ 14 screen parameter settings for slave 2 (refer to page 26).
- 18. Continue according to the relevant number of system compressors as follows:
 - If the system has 3 compressors, proceed directly to step 27.
 - If the system has 4 compressors, proceed to step 19.
- 19. Whilst in the home screen, press and release *Esc* or **S** . The screen will change to the 'Main menu' screen.
- 20. Press and release \uparrow or \checkmark until 'F. Board switch' is selected.
- 21. Press and release < to navigate to navigate to 'Board switch' screen.
- 22. Press and release 🕊 to move curser to 'Switch to unit' and set to '4'.
- 23. Press and release ✓. The screen will change to the home screen. The controller will now only access and display slave 3 (compressor 4) information.
- 24. Set configuration 03 ~ 06 screen parameter settings for slave 3 (refer to page 22).
- 25. Set Config.EVO screen parameter settings for slave 3 (refer to page 23). Skip this step if an electronic expansion valve is not installed.
- 26. Set I/O Config 01 ~ 14 screen parameter settings for slave 3 (refer to page 26).
- 27. All slave settings have now been set, however the controller is still in slave mode and will currently only access and display the selected slave's information. The following steps should be performed so that the controller will revert to display master information.
- 28. Whilst in the home screen, press and release for S. The screen will change to the 'Main menu' screen.
- 29. Press and release \uparrow or \checkmark until 'F. Board switch' is selected.
- 30. Press and release ∉ to move curser to 'Switch to unit' and set to '1'.

31. Press and release ∉. The screen will change to the home screen. The controller will now only access and display master (compressor 1) information.

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: A2WHH Air to Water Heat Pump with Hot Gas De-Ice

Shaded screens may or may not be present. Refer to relevant note for more information.

Manufacturer	Parameter	Required Setting Master	Required Setting Slaves (1)
Screen		(Compressor 1)	(Compressors 2 ~ 4)
	Model	A2WHH	Screen not available
Configuration 01	No. Compressors	Set as required	Screen not available
Configuration of	Reverse Cycle	No	Screen not available
	Defrost Type	HGB	Screen not available
	Type of Condenser fans fitted	Set as required	Set as required
Configuration 03	Electronic Expansion Valve Fitted	Set as required	Set as required
Ŭ	Refrigerant	Set as required	Set as required
	Type of circulating pump control	Cycle to test temp	Screen not available
Configuration 04	Flow switch fitted	Set as required	Screen not available
generation	User type	Set as required	Screen not available
		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 05	L.P. safety device type	Pressure Sensor (Transducer) ⁽²⁾	Pressure Sensor (Transducer) ⁽²⁾
		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 06	H.P. safety device type	Pressure Sensor (Transducer) ⁽²⁾	Pressure Sensor (Transducer) ⁽²⁾
EVO Config ⁽³⁾	Press ENTER to configure	Befer to 'Configuring Electronic Ex	pansion Valve Settings' on page 23
EVO Coning.	Entering water sensor fitted		No
I/O Config 01	Leaving water sensor fitted	Voc	No
	Leaving water sensor litted	Vee	No Yoo
I/O Config 02	Out. Coil Sensor		
1/0 0 6 00	L D	NO (LP Switch) Of	NO (LP Switch) 0/
I/O Config 03	LP sensor fitted	Yes (LP Transducer)	Yes (LP Transducer)
		Ratiometric	Ratiometric
I/O Config 03b (4)	Minimum scale	0	0
J	Maximum scale	17.0	17.0
		No (HP Switch) or	No (HP Switch) or
I/O Config 04	HP sensor fitted	Yes (HP Transducer)	Yes (HP Transducer)
	Dut. Coil Sensor .P sensor fitted Ainimum scale Aaximum scale IP sensor fitted Ainimum scale Ainimum scale Junimum scale Junimum scale Junimum scale Dut. Air sensor DI 1 (Low pressure)	Ratiometric	Ratiometric
1/O Config 04b ⁽⁵⁾	Minimum scale	0	0
i/e comig e ib	Maximum scale	34.0	34.0
I/O Config 05	Out Air sensor	No	No
1/O Coning 05		Carel NTC	Carel NTC
		N/C (Single stage system) or	N/C (Single stage system) or
	DI I (LOW pressure)	N/O (Dual stage system)	N/O (Dual stage system)
	DL2 (High pressure)	N/C (Single stage system) or	N/C (Single stage system) or
	Di 2 (riigii pressure)	N/O (Dual stage system)	N/O (Dual stage system)
	DI 3 (Address select 1)	Not available	Not available
I/O Config 07	DI 4 (Address select 2)	Not available	Not available
(Digital Inputs)	DI 5 (Flow switch)	N/O	N/O
	DI 6 (Compressor overload)	N/O	N/O
	DI 7 (Remote on/off)	N/O	N/O
	DI 8 (Not utilised)	N/O	N/O
	DI 9 (Not utilised)	N/O	N/O
	DI 10 (Not utilised)	N/O	N/O
	Comp min on delay	10s	Screen not available
I/O Config 08	Min off delay	120s	Screen not available
i/O Coning 00	Min on delay	360s	Screen not available
	Minimum time between starting 2	Screen not available (1 comp) or	Server not available
I/O Config 09	different compressors	$20s (2 \sim 4 \text{ comps})$	Screen not available
	BV Change over delay	Screen not available	Screen not available
I/O Config 10	BV Max idle time	Screen not available	Screen not available
	Cond Setnoint	35	35
I/O Config 11	Evan Setpoint	55	55
	Differential	<u> </u>	
		Sot as required	Sot on required
I/O Config 14		Set as required	
Ľ	iviinimum Setpoint	Set as required	Set as required

⁽¹⁾ Refer to 'Setting Parameter Settings for Each Additional Slave Compressor' on page 26.

⁽³⁾ Screen only available if 'Configuration 03 > Electronic Expansion Valve Fitted' = Yes.

⁽⁴⁾ Screen only available if 'I/O Config 03 > LP sensor fitted' = Yes, Ratiometric.

⁽⁵⁾ Screen only available if 'I/O Config 04 > HP sensor fitted' = Yes, Ratiometric.

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: A2WHR Air to Water Heat Pump with Reverse Cycle De-Ice

Shaded screens may or may not be present. Refer to relevant note for more information.

Manufacturer	Parameter	Required Setting Master	Required Setting Slaves (1)
Screen	i arameter	(Compressor 1)	(Compressors 2 ~ 4)
	Model	A2WHR	Screen not available
Configuration 01	No. Compressors	Set as required	Screen not available
Conliguration 01	Reverse Cycle	Yes	Screen not available
	Defrost Type	R/C	Screen not available
	Type of Condenser fans fitted	Set as required	Set as required
Configuration 03	Electronic Expansion Valve Fitted	Set as required	Set as required
5	Refrigerant	Set as required	Set as required
	Type of circulating pump control	Cycle to test temp	Screen not available
Configuration 04	Flow switch fitted	Set as required	Screen not available
generation of the	User type	Set as required	Screen not available
		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 05	L.P. safety device type	Pressure Sensor (Transducer) ⁽²⁾	Pressure Sensor (Transducer) ⁽²⁾
		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 06	H.P. safety device type	Pressure Sensor (Transducer) ⁽²⁾	Pressure Sensor (Transducer) ⁽²⁾
EVO Config. ⁽³⁾	Press ENTER to configure	Refer to 'Configuring Electronic Ex	pansion Valve Settings' on page 23
	Entering water sensor fitted	Yes	No
I/O Config 01	Leaving water sensor fitted	Yes	No
		Yes	Ves
I/O Config 02	Out. Coil Sensor	Carel NTC	Carel NTC
	LP sensor fitted	No (LP Switch) or	No (LP Switch) or
I/O Config 03	LP sensor fitted	Yes (I P Transducer)	Ves (I P Transducer)
		Batiometric	Batiometric
	User typeSet as requiredL.P. safety device typeDigital Input (Switch) or Pressure Sensor (Transduce Digital Input (Switch) or Pressure Sensor (Transduce Pressure Sensor (Transduce Pressure Sensor (Transduce Pressure Sensor (Transduce Pressure Sensor (Transduce Pressure Sensor (Transduce) Pressure Sensor (Transduce) Pressure) No (LP Switch) or Pressure Sensor (Transduce) Pressure Sensor (Transduce) P		
I/O Config 03b ⁽⁴⁾	Maximum scale	17.0	17.0
-		No (HP Switch) or	No (HP Switch) or
1/O Config 04	LID concert fitted	Voc (HP Transducor)	Voc (HP Transducor)
1/O Config 04	Parameter Model No. Compressors Reverse Cycle Defrost Type Type of Condenser fans fitted Electronic Expansion Valve Fitted Refrigerant Type of circulating pump control Flow switch fitted User type L.P. safety device type Press ENTER to configure Rentering water sensor fitted Leaving water sensor fitted Out. Coil Sensor LP sensor fitted Maximum scale Maximum scale Maximum scale Out. Air sensor DI 1 (Low pressure) DI 2 (High pressure) DI 3 (Address select 1) DI 4 (Address select 2) DI 5 (Flow switch) DI 9 (Not utilised) DI 9 (Not utilised) DI 10 (Not utilised) Comp min on delay		
	.P sensor fitted	Adiometric	Adiometric
I/O Config 04b ⁽⁵⁾	Maximum acale	24.0	24.0
-			
I/O Config 05	Out. Air sensor		
	DI 1 (Low pressure)	N/C (Single stage system) or	N/C (Single stage system) or
		N/O (Dual stage system)	N/O (Dual stage system)
	DI 2 (High pressure)	N/C (Single stage system) or	N/C (Single stage system) or
		N/O (Dual stage system)	N/O (Dual stage system)
1/0 0 // 07	DI 3 (Address select 1)	Not available	Not available
I/O Config 07	DI 4 (Address select 2)	Not available	Not available
(Digital Inputs)	DI 5 (Flow switch)	N/O	N/O
	DI 6 (Compressor overload)	N/O	N/O
	DI 7 (Remote on/off)	N/O	N/O
	DI 8 (Not utilised)	N/O	N/O
	DI 9 (Not utilised)	N/O	N/O
	DI 10 (Not utilised)	N/O	N/O
	Comp min on delay	10s	Screen not available
I/O Config 08	Min off delay	120s	Screen not available
	Min on-on delay	360s	Screen not available
I/O Config 09	Minimum time between starting 2	Screen not available (1 comp) or	Screen not available
"C Coning 00	different compressors	20s (2 ~ 4 comps)	
I/O Config 10	RV Change over delay	31s	Screen not available
	RV Max idle time	300s	Screen not available
	Cond. Setpoint	35	35
I/O Config 11	Evap. Setpoint	5	5
	Differential	res R/C Set as required Digital Input (Switch) or Pressure Sensor (Transducer) ⁽²⁾ Digital Input (Switch) or Pressure Sensor (Transducer) ⁽²⁾ Refer to 'Configuring Electronic Ex Yes Yes Carel NTC No (LP Switch) or Yes (LP Transducer) Ratiometric 0 17.0 No (HP Switch) or Yes (HP Transducer) Ratiometric 0 34.0 No Carel NTC N/C (Single stage system) or N/O (Dual stage system) N/O (Dual stage system) N/O (Dual stage system) N/O N	3
1/O Config 14	Maximum Setpoint	Set as required	Set as required
10 Coning 14	Minimum Setpoint	Set as required	Set as required

⁽¹⁾ Refer to 'Setting Parameter Settings for Each Additional Slave Compressor' on page 26.

⁽³⁾ Screen only available if 'Configuration 03 > Electronic Expansion Valve Fitted' = Yes.

⁽⁴⁾ Screen only available if 'I/O Config 03 > LP sensor fitted' = Yes, Ratiometric.

 $^{(5)}$ Screen only available if 'I/O Config 04 > HP sensor fitted' = Yes, Ratiometric.

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: A2WHC Air to Water Heat & Cool

Shaded screens may or may not be present. Refer to relevant note for more information.

Manufacturer	Parameter	Required Setting Master	Required Setting Slaves (1)
Screen	i didinotor	(Compressor 1)	(Compressors 2 ~ 4)
	Model	A2WHC	Screen not available
Configuration 01	No. Compressors	Set as required	Screen not available
Configuration of	Reverse Cycle	Yes	Screen not available
	Defrost Type	R/C	Screen not available
	Type of Condenser fans fitted	Set as required	Set as required
Configuration 03	Electronic Expansion Valve Fitted	Set as required	Set as required
-	Refrigerant	Set as required	Set as required
	Type of circulating pump control	Cycle to test temp	Screen not available
Configuration 04	Flow switch fitted	Set as required	Screen not available
J	User type	Set as required	Screen not available
		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 05	L.P. safety device type	Pressure Sensor (Transducer) ⁽²⁾	Pressure Sensor (Transducer) ⁽²⁾
		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 06	H.P. safety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)
EVO Config. (3)	Press ENTER to configure	Refer to 'Configuring Electronic Ex	pansion Valve Settings' on page 23
	Entering water sensor fitted	Yes	No
I/O Config 01	Leaving water sensor fitted	Yes	No
		Ves	Ves
I/O Config 02	Out. Coil Sensor	Carel NTC	Carel NTC
		No (LP Switch) or	No (LP Switch) or
1/O Config 03	L P sensor fitted	Ves (LP Transducer)	Ves (LP Transducer)
1/O Coning 03		Batiomotrio	Patiomatria
	Minimum coolo	Adiometric	Adiometric
I/O Config 03b ⁽⁴⁾	Maximum scale	17.0	17.0
-			
		NO (HP SWITCH) Or	No (HP Switch) or
1/O Config 04	HP sensor fitted	Yes (HP Transducer)	Yes (HP Transoucer)
		Ratiometric	Ratiometric
I/O Config 04b (5)	Minimum scale	0	0
	Maximum scale	34.0	34.0
I/O Config 05	Out Air sensor	No	No
		Carel NTC	Carel NTC
	DI 1 (Low pressure)	N/C (Single stage system) or	N/C (Single stage system) or
		N/O (Dual stage system)	N/O (Dual stage system)
	DI 2 (High pressure)	N/C (Single stage system) or	N/C (Single stage system) or
		N/O (Dual stage system)	N/O (Dual stage system)
	DI 3 (Address select 1)	Not available	Not available
I/O Config 07	DI 4 (Address select 2)	Not available	Not available
(Digital Inputs)	DI 5 (Flow switch)	N/O	N/O
	DI 6 (Compressor overload)	N/O	N/O
	DI 7 (Remote on/off)	N/O	N/O
	DI 8 (Not utilised)	N/O	N/O
	DI 9 (Not utilised)	N/O	N/O
	DI 10 (Not utilised)	N/O	N/O
	Comp min on delay	10s	Screen not available
I/O Config 08	Min off delay	120s	Screen not available
i o comg co	Min on-on delay	360s	Screen not available
	Minimum time between starting 2	Screen not available (1 comp) or	
I/O Config 09	different compressors	$20s (2 \sim 4 \text{ comps})$	Screen not available
	BV Change over delay	203 (2 + 0011103)	Screen not available
I/O Config 10	RV Max idle time	3000	Screen not available
	Cond Sotnoint	3005	
1/O Config 11	Even Setpoint	50 F	50 F
	Evap. Setpoliti	5	5
		J Octors in i	J Octore in h
I/O Confia 14	iviaximum Setpoint	Set as required	Set as required
	Minimum Setpoint	Set as required	Set as required

⁽¹⁾ Refer to 'Setting Parameter Settings for Each Additional Slave Compressor' on page 26.

⁽³⁾ Screen only available if 'Configuration 03 > Electronic Expansion Valve Fitted' = Yes.

⁽⁴⁾ Screen only available if 'I/O Config 03 > LP sensor fitted' = Yes, Ratiometric.

$^{(5)}$ Screen only available if 'I/O Config 04 > HP sensor fitted' = Yes, Ratiometric.

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: A2WC Air to Water Chiller

Shaded screens may or may not be present. Refer to relevant note for more information.

Manufacturer	Parameter	Required Setting Master	Required Setting Slaves (1)
Screen	i didinotor	(Compressor 1)	(Compressors 2 ~ 4)
	Model	A2WC	Screen not available
Configuration 01	No. Compressors	Set as required	Screen not available
Configuration of	Reverse Cycle	No	Screen not available
	Defrost Type	None	Screen not available
	Type of Condenser fans fitted	Set as required	Set as required
Configuration 03	Electronic Expansion Valve Fitted	Set as required	Set as required
-	Refrigerant	Set as required	Set as required
	Type of circulating pump control	Cycle to test temp	Screen not available
Configuration 04	Flow switch fitted	Set as required	Screen not available
Ŭ	User type	Set as required	Screen not available
0 " " 05		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 05	L.P. safety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)
		Digital Input (Switch) or	Digital Input (Switch) or
Configuration 06	H.P. safety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)
EVO Config. ⁽³⁾	Press ENTER to configure	Refer to 'Configuring Electronic Ex	pansion Valve Settings' on page 23
	Entering water sensor fitted	Yes	No
I/O Config 01	Leaving water sensor fitted	Yes	No
		Yes	Yes
I/O Config 02	Out. Coil Sensor	Carel NTC	Carel NTC
		No (LP Switch) or	No (LP Switch) or
I/O Config 03	LP sensor fitted	Yes (I P Transducer)	Yes (I P Transducer)
i/O Coning 00		Batiometric	Batiometric
	Minimum scale	0	0
I/O Config 03b ⁽⁴⁾	Maximum scale	17.0	17.0
		No (HP Switch) or	No (HP Switch) or
I/O Config 04	HP sensor fitted	Ves (HP Transducer)	Ves (HP Transducer)
1/O Coning 04		Patiomatria	Patiomatria
	Minimum scale		
I/O Config 04b ⁽⁵⁾	Maximum acala	24.0	24.0
		54.0 No	
I/O Config 05	Out. Air sensor		
		N/C (Single stage system) or	N/C (Single stage system) or
	DI 1 (Low pressure)	N/O (Dual stage system) 0/	N/C (Single stage system) or
		N/C (Dual stage system)	N/C (Dual stage system)
	DI 2 (High pressure)	N/C (Single stage system) or	N/C (Single stage system) or
	DI 2 (Address solast 1)	Not evoluble	Not evoluble
1/0 0	DI 3 (Address select 1)	Not available	Not available
I/O Conlig 07	DI 4 (Address select 2)		
(Digital inputs)	DI 5 (Flow Switch)	N/O	N/O
	DI 6 (Compressor overload)	N/O	N/O
		N/O	N/O
	DI 8 (Not utilised)	N/O	N/O
	DI 9 (Not utilised)	N/O	N/O
	DI 10 (Not utilised)	N/O	N/O
	Comp min on delay	10s	Screen not available
I/O Config 08	Min off delay	120s	Screen not available
	Min on-on delay	360s	Screen not available
I/O Config 09	Minimum time between starting 2	Screen not available (1 comp) or	Screen not available
	different compressors	20s (2 ~ 4 comps)	
I/O Config 10	RV Change over delay	Screen not available	Screen not available
	RV Max idle time	Screen not available	Screen not available
	Cond. Setpoint	35	35
I/O Config 11	Evap. Setpoint	5	5
	Differential	3	3
1/O Config 14	Maximum Setpoint	Set as required	Set as required
1/O COITing 14	Minimum Setpoint	Set as required	Set as required

⁽¹⁾ Refer to 'Setting Parameter Settings for Each Additional Slave Compressor' on page 26.

⁽³⁾ Screen only available if 'Configuration 03 > Electronic Expansion Valve Fitted' = Yes.

⁽⁴⁾ Screen only available if 'I/O Config 03 > LP sensor fitted' = Yes, Ratiometric.

 $^{(5)}$ Screen only available if 'I/O Config 04 > HP sensor fitted' = Yes, Ratiometric.

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: REMOTE the 'Remote' setting is utilised when other electronic de-ice controls (instead of the normal μ PC) are utilised to control main unit functions.

Manufacturer Screen Parameter		Required Setting			
	Model	REMOTE			
Configuration 01	No. Compressors	1			
Configuration of	Reverse Cycle	No			
	Defrost Type	None			
	Type of Condenser fans fitted	Screen not available			
Configuration 03	Electronic Expansion Valve Fitted	Screen not available			
-	Refrigerant	Screen not available			
	Type of circulating pump control	Cycle to test temp			
Configuration 04	Flow switch fitted	Set as required			
	User type	Set as required			
Configuration 05	L.P. safety device type	Screen not available			
Configuration 06	H.P. safety device type	Screen not available			
EVO Config.	Press ENTER to configure	Screen not available			
1/O Config 01	Entering water sensor fitted	Yes			
I/O Coning 01	Leaving water sensor fitted	Yes			
I/O Config 02	Out. Coil Sensor	Screen not available			
I/O Config 03	LP sensor fitted	Screen not available			
1/O Config 02h	Minimum scale	Screen not available			
	Maximum scale	Screen not available			
I/O Config 04	HP sensor fitted	Screen not available			
I/O Config 04b	Minimum scale	Screen not available			
1/O Coning 04b	Maximum scale	Screen not available			
I/O Config 05	Out Air concor	No			
1/O Coning 05		Carel NTC			
	DI 1 (Low pressure)	N/O			
	DI 2 (High pressure)	N/O			
	DI 3 (Address select 1)	Not available			
	DI 4 (Address select 2)	Not available			
I/O Config 07	DI 5 (Flow switch)	N/O			
(Digital Inputs)	DI 6 (Compressor overload)	N/O			
	DI 7 (Remote on/off)	N/O			
	DI 8 (Not utilised)	N/O			
	DI 9 (Not utilised)	N/O			
	DI 10 (Not utilised)	N/O			
	Comp min on delay	10s			
I/O Config 08	Min off delay	120s			
	Min on-on delay	360s			
I/O Config 09	Minimum time between starting 2 different compressors	Screen not available			
	RV Change over delay	Screen not available			
	RV Max idle time	Screen not available			
	Cond. Setpoint	Screen not available			
I/O Config 11	Evap. Setpoint	Screen not available			
Ŭ	Differential	Screen not available			
	Maximum Setpoint	Set as required			
	Minimum Setpoint	Set as required			

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: W2WH Water to Water Heat Pump

Shaded screens may or may not be present. Refer to relevant note for more information.

Manufacturer	Devenuetori	Required Setting Master	Required Setting Slaves (1)		
Screen	Parameter	(Compressor 1)	(Compressors 2 ~ 4)		
	Model	Ŵ2WH	Screen not available		
Configuration 01	No. Compressors	Set as required	Screen not available		
Conliguration 01	Reverse Cycle	No	Screen not available		
	Defrost Type	None	Screen not available		
	Type of Condenser fans fitted	Set as required	Set as required		
Configuration 03	Electronic Expansion Valve Fitted	Set as required	Set as required		
	Refrigerant	Set as required	Set as required		
	Type of circulating pump control	Cycle to test temp	Screen not available		
Configuration 04	Flow switch fitted	Set as required	Screen not available		
Ū	User type	Set as required	Screen not available		
O and in mation OF		Digital Input (Switch) or	Digital Input (Switch) or		
Configuration 05	L.P. safety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)		
Configuration 00		Digital Input (Switch) or	Digital Input (Switch) or		
Conliguration 06	H.P. salety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)		
EVO Config. (3)	Press ENTER to configure	Refer to 'Configuring Electronic Ex	pansion Valve Settings' on page 23		
1/0.0 6 0.1	Entering water sensor fitted	Yes	No		
I/O Config 01	Leaving water sensor fitted	Yes	No		
I/O Config 02	Out. Coil Sensor	No	No		
Ŭ		No (LP Switch) or	No (LP Switch) or		
I/O Config 03	LP sensor fitted	Yes (LP Transducer)	Yes (LP Transducer)		
J J		Ratiometric	Ratiometric		
	Minimum scale	0	0		
I/O Config 03b ⁽⁴⁾	Maximum scale	17.0	17.0		
		No (HP Switch) or	No (HP Switch) or		
I/O Config 04	HP sensor fitted	Yes (HP Transducer)	Yes (HP Transducer)		
1/O Coning 04		Batiometric	Batiometric		
	Minimum scale	0	0		
I/O Config 04b (3)	Maximum scale	34.0	34.0		
1/0 0 1 05		No	No		
I/O Config 05	Out. Air sensor	Carel NTC	Carel NTC		
		N/C (Single stage system) or	N/C (Single stage system) or		
	DI I (Low pressure)	N/O (Dual stage system)	N/O (Dual stage system)		
		N/C (Single stage system) or	N/C (Single stage system) or		
	DI 2 (High pressure)	N/O (Dual stage system)	N/O (Dual stage system)		
	DI 3 (Address select 1)	Not available	Not available		
I/O Config 07	DI 4 (Address select 2)	Not available	Not available		
(Digital Inputs)	DI 5 (Flow switch)	N/O	N/O		
(3)	DI 6 (Compressor overload)	N/O	N/O		
	DI 7 (Remote on/off)	N/O	N/O		
	DI 8 (Not utilised)	N/O	N/O		
	DI 9 (Not utilised)	N/O	N/O		
	DI 10 (Not utilised)	N/O	N/O		
	Comp min on delay	10s	Screen not available		
I/O Confia 08	Min off delay	120s	Screen not available		
"	Min on-on delay	360s	Screen not available		
100 11	Minimum time between starting 2	Screen not available (1 comp) or			
I/O Config 09	different compressors	$20s (2 \sim 4 \text{ comps})$	Screen not available		
	RV Change over delay	Screen not available	Screen not available		
I/O Config 10	RV Max idle time	Screen not available	Screen not available		
	Cond. Setpoint	35	35		
I/O Config 11	Evap. Setpoint	5	5		
	Differential	3	3		
	Maximum Setpoint	Set as required	Set as required		
I/O Config 14	Minimum Setpoint	Set as required	Set as required		

⁽¹⁾ Refer to 'Setting Parameter Settings for Each Additional Slave Compressor' on page 26.

⁽²⁾ Refer to 'LP & HP Pressure Sensor Parameter Settings Tables' on page 23 for indicative pressure settings (transducer only).

 $^{(3)}$ Screen only available if 'Configuration 03 > Electronic Expansion Valve Fitted' = Yes.

 $^{(4)}$ Screen only available if 'I/O Config 03 > LP sensor fitted' = Yes, Ratiometric.

 $^{(5)}$ Screen only available if 'I/O Config 04 > HP sensor fitted' = Yes, Ratiometric.

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: W2WHC Water to Water Heat & Cool

Shaded screens may or may not be present. Refer to relevant note for more information.

Manufacturer	Baramatar	Required Setting Master	Required Setting Slaves (1)			
Screen	Parameter	(Compressor 1)	(Compressors 2 ~ 4)			
	Model	W2WHC	Screen not available			
Configuration 01	No. Compressors	Set as required	Screen not available			
Configuration of	Reverse Cycle	Yes	Screen not available			
	Defrost Type	None	Screen not available			
	Type of Condenser fans fitted	Set as required	Set as required			
Configuration 03	Electronic Expansion Valve Fitted	Set as required	Set as required			
-	Refrigerant	Set as required	Set as required			
	Type of circulating pump control	Cycle to test temp	Screen not available			
Configuration 04	Flow switch fitted	Set as required	Screen not available			
-	User type	Set as required	Screen not available			
Configuration OF		Digital Input (Switch) or	Digital Input (Switch) or			
Configuration 05	L.P. safety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)			
Configuration 06	LLD sofety device type	Digital Input (Switch) or	Digital Input (Switch) or			
Configuration 06	H.P. Salety device type	Pressure Sensor (Transducer) ⁽²⁾	Pressure Sensor (Transducer) (2)			
EVO Config. (3)	Press ENTER to configure	Refer to 'Configuring Electronic Ex	pansion Valve Settings' on page 23			
1/O Config 01	Entering water sensor fitted	Yes	No			
I/O Conlig UT	Leaving water sensor fitted	Yes	No			
I/O Config 02	Out. Coil Sensor	No	No			
		No (LP Switch) or	No (LP Switch) or			
I/O Config 03	LP sensor fitted	Yes (LP Transducer)	Yes (LP Transducer)			
5		Ratiometric	Ratiometric			
	Minimum scale	0	0			
I/O Config 03b (4)	Maximum scale	17.0	17.0			
		No (HP Switch) or	No (HP Switch) or			
I/O Confia 04	HP sensor fitted	Yes (HP Transducer)	Yes (HP Transducer)			
i, e comig e i		Ratiometric	Ratiometric			
1/0 0 fin 0 4h (5)	Minimum scale	0	0			
I/O Coning 04b (%)	Maximum scale	34.0	34.0			
1/O Config 05	Out Air coroor	No	No			
1/O Conlig 05	Out. Air sensor	Carel NTC	Carel NTC			
		N/C (Single stage system) or	N/C (Single stage system) or			
	Di i (Low pressure)	N/O (Dual stage system)	N/O (Dual stage system)			
	DI Q (Lligh procesure)	N/C (Single stage system) or	N/C (Single stage system) or			
	Di 2 (Higri pressure)	N/O (Dual stage system)	N/O (Dual stage system)			
	DI 3 (Address select 1)	Not available	Not available			
I/O Config 07	DI 4 (Address select 2)	Not available	Not available			
(Digital Inputs)	DI 5 (Flow switch)	N/O	N/O			
	DI 6 (Compressor overload)	N/O	N/O			
	DI 7 (Remote on/off)	N/O	N/O			
	DI 8 (Not utilised)	N/O	N/O			
	DI 9 (Not utilised)	N/O	N/O			
	DI 10 (Not utilised)	N/O	N/O			
	Comp min on delay	10s	Screen not available			
I/O Confia 08	Min off delay	120s	Screen not available			
	Min on-on delay	360s	Screen not available			
	Minimum time between starting 2	Screen not available (1 comp) or				
I/O Contig 09	different compressors	20s (2 ~ 4 comps)	Screen not available			
	RV Change over delay	31s	Screen not available			
I/O Config 10	RV Max idle time	300s	Screen not available			
	Cond. Setpoint	35	35			
I/O Config 11	Evap. Setpoint	5	5			
	Differential	3	3			
	Maximum Setpoint	Set as required	Set as required			
I/O Config 14	Minimum Setpoint	Set as required	Set as required			

⁽¹⁾ Refer to 'Setting Parameter Settings for Each Additional Slave Compressor' on page 26.

⁽²⁾ Refer to 'LP & HP Pressure Sensor Parameter Settings Tables' on page 23 for indicative pressure settings (transducer only).

 $^{(3)}$ Screen only available if 'Configuration 03 > Electronic Expansion Valve Fitted' = Yes.

 $^{(4)}$ Screen only available if 'I/O Config 03 > LP sensor fitted' = Yes, Ratiometric.

⁽⁵⁾ Screen only available if 'I/O Config 04 > HP sensor fitted' = Yes, Ratiometric.

MANUFACTURER SCREEN PARAMETER SETTINGS

Model: W2WC Water to Water Heat & Cool

Shaded screens may or may not be present. Refer to relevant note for more information.

Manufacturer	Devenuetori	Required Setting Master	Required Setting Slaves (1)		
Screen	Parameter	(Compressor 1)	(Compressors 2 ~ 4)		
	Model	W2WC	Screen not available		
Configuration 01	No. Compressors	Set as required	Screen not available		
Conliguration 01	Reverse Cycle	No	Screen not available		
	Defrost Type	None	Screen not available		
	Type of Condenser fans fitted	Set as required	Set as required		
Configuration 03	Electronic Expansion Valve Fitted	Set as required	Set as required		
U U	Refrigerant	Set as required	Set as required		
	Type of circulating pump control	Cycle to test temp	Screen not available		
Configuration 04	Flow switch fitted	Set as required	Screen not available		
Ū	User type	Set as required	Screen not available		
0		Digital Input (Switch) or	Digital Input (Switch) or		
Configuration 05	L.P. safety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)		
Configuration 00		Digital Input (Switch) or	Digital Input (Switch) or		
Conliguration 06	H.P. salety device type	Pressure Sensor (Transducer) (2)	Pressure Sensor (Transducer) (2)		
EVO Config. (3)	Press ENTER to configure	Refer to 'Configuring Electronic Exp	pansion Valve Settings' on page 23		
1/0.0 6 0.1	Entering water sensor fitted	Yes	No		
I/O Config 01	Leaving water sensor fitted	Yes	No		
I/O Config 02	Out. Coil Sensor	No	No		
Ŭ		No (LP Switch) or	No (LP Switch) or		
I/O Config 03	LP sensor fitted	Yes (LP Transducer)	Yes (LP Transducer)		
J J		Ratiometric	Ratiometric		
	Minimum scale	0	0		
I/O Config 03b ⁽⁴⁾	Maximum scale	17.0	17.0		
		No (HP Switch) or	No (HP Switch) or		
I/O Confia 04	HP sensor fitted	Yes (HP Transducer)	Yes (HP Transducer)		
1/O Coning 04		Batiometric	Batiometric		
	Minimum scale	0	0		
I/O Config 04b (3)	Maximum scale	34.0	34.0		
1/0 0 1 05		No	No		
I/O Config 05	Out. Air sensor	Carel NTC	Carel NTC		
		N/C (Single stage system) or	N/C (Single stage system) or		
	DI I (Low pressure)	N/O (Dual stage system)	N/O (Dual stage system)		
		N/C (Single stage system) or	N/C (Single stage system) or		
	DI 2 (High pressure)	N/O (Dual stage system)	N/O (Dual stage system)		
	DI 3 (Address select 1)	Not available	Not available		
I/O Config 07	DI 4 (Address select 2)	Not available	Not available		
(Digital Inputs)	DI 5 (Flow switch)	N/O	N/O		
(3)	DI 6 (Compressor overload)	N/O	N/O		
	DI 7 (Remote on/off)	N/O	N/O		
	DI 8 (Not utilised)	N/O	N/O		
	DI 9 (Not utilised)	N/O	N/O		
	DI 10 (Not utilised)	N/O	N/O		
	Comp min on delay	10s	Screen not available		
I/O Confia 08	Min off delay	120s	Screen not available		
"	Min on-on delay	360s	Screen not available		
	Minimum time between starting 2	Screen not available (1 comp) or			
I/O Config 09	different compressors	$20s (2 \sim 4 \text{ comps})$	Screen not available		
	RV Change over delay	Screen not available	Screen not available		
I/O Config 10	RV Max idle time	Screen not available	Screen not available		
	Cond. Setpoint	35	35		
I/O Config 11	Evap. Setpoint	5	5		
	Differential	3	3		
	Maximum Setpoint	Set as required	Set as required		
I/O Config 14	Minimum Setpoint	Set as required	Set as required		

⁽¹⁾ Refer to 'Setting Parameter Settings for Each Additional Slave Compressor' on page 26.

⁽²⁾ Refer to 'LP & HP Pressure Sensor Parameter Settings Tables' on page 23 for indicative pressure settings (transducer only).

 $^{(3)}$ Screen only available if 'Configuration 03 > Electronic Expansion Valve Fitted' = Yes.

 $^{(4)}$ Screen only available if 'I/O Config 03 > LP sensor fitted' = Yes, Ratiometric.

 $^{(5)}$ Screen only available if 'I/O Config 04 > HP sensor fitted' = Yes, Ratiometric.

PROGRAMMING USING SMARTKEY (HOTKEY)

- 1. Turn heat pump OFF.
- 2. Disconnect any additional stages at R+/R-/GND terminal plugs.
- 3. Disconnect telephone cable from control panel and plug cable into SmartKey.
- 4. Turn heat pump ON.
- 5. The lights on the SmartKey will flash momentarily and beep, then the up and down arrows will flash. Do not push anything.
- 6. When the start and mode buttons and up arrow illuminate solid, push and release 'Start' to begin programming.
- 7. The up arrow will flash and the SmartKey will beep when programming is complete.
- 8. Turn heat pump OFF.
- 9. Disconnect telephone cable from SmartKey and plug cable back into control panel.
- 10. Turn heat pump ON and check settings are correct (refer to 'Initial System Setup Procedure' on page 21).
- 11. Make changes to parameter settings as required.

ENABLE UNIT ON / OFF BY FLOW SWITCH

If the system water pump is controlled by the heat pump, the 'Enable Unit On / Off by Flow Switch' parameter should be set to 'No'. If the flow switch does not activate, the controller will then provide a 'Water Flow Fault' alarm indication.

If the system pump is NOT controlled by the heat pump, the 'Enable Unit On / Off by Flow Switch' parameter should be set to 'Yes'. If the flow switch does not activate, the controller will then provide a 'Unit OFF by FLOW S/W' message indication (not an alarm condition).

To change the unit to 'Enable Unit On / Off By Flow Switch' to 'Yes'

- 1. Whilst in the home screen, press and release *sc* or *sc*. The screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until 'G.Service' is selected.
- 3. Press and release ← and enter the four digit password '0022' (Set first digit then press ← to move to the next digit etc). When the last digit has been set press and release ←. Note: This step will not occur if the password has been previously entered within 10 minutes.
- 4. Press and release ↑ or ↓ until 'F. Service settings' is selected.
- 5. Press and release
 ✓. The 'C. Thermoregulation' 'Enable Unit On / Off' screen will be displayed.
- 6. Press and release ↑ or ↓ until 'Thermoregulation 06' is selected.
- 7. Press and release 🕊 to move cursor to 'By Flow Switch'. The 'No should be flashing
- 8. Press and release \uparrow or \checkmark to select 'Yes' as appropriate.
- 9. Press and release 🛩
- 10. Press and release for four times to go back to the home menu.
- 11. Press and hold A or *M* for 2 seconds to clear all active alarms.

VIEWING INPUTS & OUTPUTS ON THE CONTROL PANEL

- 1. Whilst in the home screen, press and release *sc* or . The screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until D. Input/Output' is selected.
- 3. Press and release ✓. The 'Input/Output 01' screen will be displayed.
- 4. Press and release to view the different Input/Output screens. Proceed to the next step when all viewing is complete.
- 5. Press and release *Esc* or twice to go back to the home menu.

Input/Output Table

Name On Screen	Corresponding Input/Output Terminal	Other Rqd Terminal/s	Туре
Entering Temperature	B1	GND	Carel NTC
Leaving Temperature	B2	GND	Carel NTC
Coil Sensor	B3	GND	Carel NTC
Suction Temperature	B4	GND	Fast Acting Carel NTC
Suction Procesure	R6 (White Load)	+5VR (Black Lead)	0-5V Ratiometric
	Bo (Willie Lead)	GND (Green Lead)	Pressure Transducer
Discharge Pressure	B7 (White Lead)	+5VR (Black Lead)	0-5V Ratiometric
	D? (Willie Lead)	GND (Green Lead)	Pressure Transducer
LP Switch	DI1	DIC1	N/C Pressure Switch
HP Switch	DI2	DIC1	N/C Pressure Switch
Address 1	DI3	DIC1	For choosing stages
Address 2	DI4	DIC1	For choosing stages
Flow Switch	DI5	DIC1	N/O Input
DRED Input	DI6	DIC1	N/O Input
Remote ON/Off	DI7	DIC1	N/O Input
Compressor	NO1	C1	N/O Relay Contacts
Reversing Valve	NO2	C1	N/O Relay Contacts
Fan: Low	NO3	C1	N/O Relay Contacts
Fan: High	NO4	C2	N/O Relay Contacts
Circulating Pump	NO6	C2	N/O Relay Contacts
Alarm	NO7	C3	N/O Relay Contacts
Alarm	NC7	C3	N/C Relay Contacts
Remote Mode Cool Signal	NO1	C1	N/O Relay Contacts
Remote Mode Heat Signal	NO2	C1	N/O Relay Contacts

SYSTEM MONITORING WITHOUT BMS

pCOweb is a serial card with an inbuilt web server that provides BACnet on TCP/IP that can be accessed via a local intranet.

The pCOweb serial card is connected to the local intranet via an RJ45 CAT5 connection and the networking configuration is performed by the end user. This enables a web page (or pages) to be created and loaded onto the card after which time the inbuilt web server can then be then accessed like any other web page i.e. the address is entered into the local intranet browser (normally the local address) and live updates of system variables, i.e. temperatures, system status etc can be provided.

BMS MONITORING

Three BMS options are offered which are as follows:

- 1. BACnet MS/TP with RS485 2 wire connection.
- 2. BACnet on TCP/IP via web server (via Ethernet LAN connection).
- 3. Modbus serial card.

Available parameters are as follows:

• Analogue variables read values (27 off).

- Analogue variables read / write values (3 off).
- Integer variables read values (19 off).
- Digital variables read values (48 off).
- Digital variables read / write values (3 off).

The following tables detail available BMS parameters.

SUPERVISOR PARAMETERS TABLE

BMS Address	Description	Default	Category	UOM	Min	Max	Read/Write	Variable name
1	reading from input 1	0	Default		-3276.8	3276.7	R	Probe_Value_1
2	reading from input 2	0	Default		-3276.8	3276.7	R	Probe_Value_2
3	reading from input 3	0	Default		-3276.8	3276.7	R	Probe_Value_3
4	reading from input 4	0	Default		-3276.8	3276.7	R	Probe_Value_4
5	reading from input 5	0	Default		-3276.8	3276.7	R	Probe_Value_5
6	reading from input 6	0	Default		-3276.8	3276.7	R	Probe_Value_6
7	reading from input 7	0	Default		-3276.8	3276.7	R	Probe_Value_7
8	reading from input 8	0	Default		-3276.8	3276.7	R	Probe_Value_8
9	reading from input 9	0	Default		-3276.8	3276.7	R	Probe_Value_9
10	reading from input 10	0	Default		-3276.8	3276.7	R	Probe_Value_10
11	reading from input 11	0	Default		-3276.8	3276.7	R	Probe_Value_11
12	reading from input 12	0	Default		-3276.8	3276.7	R	Probe_Value_12
13	Virtual Analoge Output 1	0	Default		0	3276.7	R	VAOut_1
14	Virtual Analoge Output 2	0	Default		0	3276.7	R	VAOut_2
15	Virtual Analoge Output 3	0	Default		0	3276.7	R	VAOut_3
16	Virtual Analoge Output 4	0	Default		0	3276.7	R	VAOut_4
17	Virtual Analoge Output 5	0	Default		0	3276.7	R	VAOut_5
18	Virtual Analoge Output 6	0	Default		0	3276.7	R	VAOut_6
19	Superheat valve Comp 1	0	Default		-72	324	R	Superheat_C1
20	Superheat valve Comp 2	0	Default		-72	324	R	Superheat_C2
21	Superheat valve Comp 3	0	Default		-72	324	R	Superheat_C3
22	Superheat valve Comp 4	0	Default		-72	324	R	Superheat_C4
24	Outside Air Temperature	0	Default	BAR	-99.9	99.9	R	OAT
25	Entering water temperature	0	Default	°C	-99.9	99.9	R	EW_temp
26	Leaving water temperature	0	Default	°C	-99.9	99.9	R	LW_temp
27	Condenser temperature (either from NTC or P-T)	0	Default		-99.9	99.9	R	Cond_temp
28	Current entering water Setpoint	22	Default	°C	0	45	R	Active_Setpoint
29	Active Proportional Band for compressor	1.5	Default	°C	0	9.9	R	Active_Pro_band
30	Water Setpoint	22	Default	°C	5	45	R/W	Setpoint
31	Dead band	1	Default	°C	0	9.9	R/W	D_Band
32	Proportional Band for compressor	1.5	Default	°C	0	9.9	R/W	Pro_band

BMS INTEGER VARIABLES TABLE

BMS Address	Description	Default	Category	UOM	Min	Max	Direction	Variable name
21	type of tariff - timeband 0 week end	0	Default		0	2	R/W	trfw_0
22	type of tariff - timeband 1 week end	0	Default		0	2	R/W	trfw_1
23	type of tariff - timeband 2 week end	0	Default		0	2	R/W	trfw_2
24	type of tariff - timeband 3 week end	0	Default		0	2	R/W	trfw_3
25	type of tariff - timeband 4 week end	0	Default		0	2	R/W	trfw_4
26	type of tariff - timeband 5 week end	0	Default		0	2	R/W	trfw_5
27	type of tariff - timeband 6 week end	0	Default		0	2	R/W	trfw_6
28	type of tariff - timeband 7 week end	0	Default		0	2	R/W	trfw_7
29	type of tariff - timeband 8 week end	0	Default		0	2	R/W	trfw_8
30	type of tariff - timeband 9	0	Default		0	2	R/W	trfw_9
31	type of tariff - timeband 10 week end	0	Default		0	2	R/W	trfw_10
32	type of tariff - timeband 11 week end	0	Default		0	2	R/W	trfw_11
33	type of tariff - timeband 12 week end	0	Default		0	2	R/W	trfw_12
34	type of tariff - timeband 13 week end	0	Default		0	2	R/W	trfw_13
35	type of tariff - timeband 14 week end	0	Default		0	2	R/W	trfw_14
36	type of tariff - timeband 15 week end	0	Default		0	2	R/W	trfw_15
37	type of tariff - timeband 16 week end	0	Default		0	2	R/W	trfw_16
38	type of tariff - timeband 17 week end	0	Default		0	2	R/W	trfw_17
39	type of tariff - timeband 18 week end	0	Default		0	2	R/W	trfw_18
40	type of tariff - timeband 19 week end	0	Default		0	2	R/W	trfw_19
41	type of tariff - timeband 20 week end	0	Default		0	2	R/W	trfw_20
42	type of tariff - timeband 21 week end	0	Default		0	2	R/W	trfw_21
43	type of tariff - timeband 22 week end	0	Default		0	2	R/W	trfw_22
44	type of tariff - timeband 23 week end	0	Default		0	2	R/W	trfw_23
49	State of unit.	0	Default		0	13	R	Unit_Status
70	Compressor 1 Hour run counter (low)	0	Default		0	999	R	Comp_T_Hours_L_1
71	Compressor 1 Hour run counter (high)	0	Default		0	999	R	Comp_T_Hours_H_1
72	Compressor 2 Hour run counter (low)	0	Default		0	999	R	Comp_T_Hours_L_2
73	Compressor 2 Hour run counter (high)	0	Default		0	999	R	Comp_T_Hours_H_2
74	Compressor 3 Hour run counter (low)	0	Default		0	999	R	Comp_T_Hours_L_3
75	Compressor 3 Hour run counter (high)	0	Default		0	999	R	Comp_T_Hours_H_3
76	Compressor 4 Hour run counter (low)	0	Default		0	999	R	Comp_T_Hours_L_4

77	Compressor 4 Hour run counter (high)	0	Default		0	999	R	Comp_T_Hours_H_4
78	Pump Hour run counter (low)	0	Default		0	999	R	Pump_T_Hours_L
79	Pump Hour run counter (high)	0	Default		0	999	R	Pump_T_Hours_H
86	Outdoor Fan 1 Hour run counter (low)	0	Default		0	999	R	OutFan_T_Hours_L_1
87	Outdoor fan 1 Hour run counter (high)	0	Default		0	999	R	OutFan_T_Hours_H_1
88	Outdoor Fan 2 Hour run counter (low)	0	Default		0	999	R	OutFan_T_Hours_L_2
89	Outdoor fan 2 Hour run counter (high)	0	Default		0	999	R	OutFan_T_Hours_H_2
90	Outdoor Fan 3 Hour run counter (low)	0	Default		0	999	R	OutFan_T_Hours_L_3
91	Outdoor fan 3 Hour run counter (high)	0	Default		0	999	R	OutFan_T_Hours_H_3
92	Outdoor Fan 4 Hour run counter (low)	0	Default		0	999	R	OutFan_T_Hours_L_4
93	Outdoor fan 4 Hour run counter (high)	0	Default		0	999	R	OutFan_T_Hours_H_4
100		15018	Default		0	32767	R	BMS_Sw_Ver
101		15018	Default		0	32767	R	BMS_Sw_Date
102		0	Default		0	9999	R	Manuf_Password
103	Current year	0	Clock / TimeDate		0	99	R	CURRENT_YEAR
104	Current month	1	Clock / TimeDate		1	12	R	CURRENT_MONTH
105	Current day	1	Clock / TimeDate		1	31	R	CURRENT_DAY
106	Current hour	0	Clock / TimeDate	h	0	23	R	CURRENT_HOUR
107	Current minute	0	Clock / TimeDate		0	59	R	CURRENT_MINUTE

BMS DIGITAL VARIABLES TABLE

BMS Address	Description	Default	Categor y	UOM	Min	Max	Directio n	Variable name
1	Digital Input 1	0	Default		0	1	R	Din_1
2	Digital Input 2	0	Default		0	1	R	Din_2
3	Digital Input 3	0	Default		0	1	R	Din_3
4	Digital Input 4	0	Default		0	1	R	Din_4
5	Digital Input 5	0	Default		0	1	R	Din_5
6	Digital Input 6	0	Default		0	1	R	Din_6
7	Digital Input 7	0	Default		0	1	R	Din_7
8	Digital Input 8	0	Default		0	1	R	Din_8
9	Digital Input 9	0	Default		0	1	R	Din_9
10	Digital Input 10	0	Default		0	1	R	Din_10
11	Digital Input 11	0	Default		0	1	R	Din_11

12	Digital Input 12	0	Default	 0	1	R	Din_12
13	Digital Input 13	0	Default	 0	1	R	Din_13
14	Digital Input 14	0	Default	 0	1	R	Din_14
15	Digital Input 15	0	Default	 0	1	R	Din_15
16	Digital Input 16	0	Default	 0	1	R	Din_16
17	Digital Input 17	0	Default	 0	1	R	Din_17
18	Digital Input 18	0	Default	 0	1	R	Din_18
19	Virtual Digital Output 1	0	Default	 0	1	R	VDOut_1
20	Virtual Digital Output 2	0	Default	 0	1	R	VDOut_2
21	Virtual Digital Output 3	0	Default	 0	1	R	VDOut_3
22	Virtual Digital Output 4	0	Default	 0	1	R	VDOut_4
23	Virtual Digital Output 5	0	Default	 0	1	R	VDOut_5
24	Virtual Digital Output 6	0	Default	 0	1	R	VDOut_6
25	Virtual Digital Output 7	0	Default	 0	1	R	VDOut_7
26	Virtual Digital Output 8	0	Default	 0	1	R	VDOut_8
27	Virtual Digital Output 9	0	Default	 0	1	R	VDOut_9
28	Virtual Digital Output 10	0	Default	 0	1	R	VDOut_10
29	Virtual Digital Output 11	0	Default	 0	1	R	VDOut_11
30	Virtual Digital Output 12	0	Default	 0	1	R	VDOut_12
31	Virtual Digital Output 13	0	Default	 0	1	R	VDOut_13
32	Select if din 6 is Compressor Overload or DRED	0	Default	 0	1	R/W	Sel_dred_ol
41	Actual status of compressor 1	0	Default	 0	1	R	Device_Status_Comp_ 1
42	Actual status of compressor 2	0	Default	 0	1	R	Device_Status_Comp_ 2
43	Actual status of compressor 3	0	Default	 0	1	R	Device_Status_Comp_ 3
44	Actual status of compressor 4	0	Default	 0	1	R	Device_Status_Comp_ 4
45	Actual status of reverse valve	0	Default	 0	1	R	Device_Status_rev_vlv 1
46	Actual status of reverse valve 2	0	Default	 0	1	R	Device_Status_rev_vlv 2
47	Actual status of reverse valve 3	0	Default	 0	1	R	Device_Status_rev_vlv 3

48	Actual status of reverse valve	0	Default	 0	1	R	Device_Status_rev_vlv 4
49	On-Off unit state (0: Off; 1: On)	0	Default	 0	1	R	Sys_On
50	Supervisor (BMS) On-Off. Show the state OFF by BMS in main mask (0: Off; 1: On)	0	Default	 0	1	R/W	Superv_OnOff
51	Alarm reset from supervisory	1	Default	 0	1	R/W	RST_Alarms
52	Enable tariff time zone management	0	Default	 0	1	R/W	Trf_en
120	Alarm relay	0	Default	 0	1	R	Alarm
121	Alarm from probe on input 1	0	Alarms	 0	1	R	Al_probe_1
122	Alarm from probe on input 2	0	Alarms	 0	1	R	Al_probe_2
123	Alarm from probe on input 3	0	Alarms	 0	1	R	Al_probe_3
124	Alarm from probe on input 4	0	Alarms	 0	1	R	Al_probe_4
125	Alarm from probe on input 5	0	Alarms	 0	1	R	Al_probe_5
126	Alarm from probe on input 6	0	Alarms	 0	1	R	Al_probe_6
127	Alarm from probe on input 7	0	Alarms	 0	1	R	Al_probe_7
128	Alarm from probe on input 8	0	Alarms	 0	1	R	Al_probe_8
129	Alarm from probe on input 9	0	Alarms	 0	1	R	Al_probe_9
130	Alarm from probe on input 10	0	Alarms	 0	1	R	Al_probe_10
131	Alarm from probe on input 11	0	Alarms	 0	1	R	Al_probe_11
132	Alarm from probe on input 12	0	Alarms	 0	1	R	Al_probe_12
133	Alarm_comp1	0	Default	 0	1	R	Device_Alarm_comp1
134	Alarm_comp2	0	Default	 0	1	R	Device_Alarm_comp2
135	Alarm_comp3	0	Default	 0	1	R	Device_Alarm_comp3
136	Alarm_comp4	0	Default	 0	1	R	Device_Alarm_comp4
137	Compressor Overload 1	0	Default	 0	1	R	Comp_OL1
138	Compressor Overload 2	0	Default	 0	1	R	Comp_OL2
139	Compressor Overload 3	0	Default	 0	1	R	Comp_OL3
140	Compressor Overload 4	0	Default	 0	1	R	Comp_OL4

SERVICE MENU

The Service Menu provides system information intended for service personnel and is comprised of the following screens:

G. Service Screen	Screen Description
a. Change Display	The display should always be set to the default setting which is 'pGD'.
b. Information	Displays controller firmware and software version and information.
c. Summer/Winter	Not utilised.
d. Working Hours	Displays total run time of circ pump, compressor(s) and outdoor fan(s).
	Address: 1
e. BMS Config	Protocol: Carel
	Speed: 19200
f. Service Settings	Displays detailed system information and settings. Refer to 'Service Settings Screen Default Parameter Value Table' on page 45 for detailed information.
g. Manual Management	Enables manual activation of selected system components for field testing purposes. <i>Always ensure settings are changed back to their previous values when testing is completed.</i>

Viewing Service Screens a, b, c & d

- 1. Whilst in the home screen, press and release *sc* or . The screen will change to the 'Main menu' screen.
- 2. Press and release ↑ or ↓ until 'G. Service' is selected.
- 3. Press and release \checkmark . The screen will change to the Service Menu screen.
- 4. Press and release \uparrow or \checkmark to select the required service screen.
- 5. Press and release 🕊 to enter the selected service screen.
- 6. Press and release ↑ or ↓ to navigate between the selected service screen sub screens (if any).
- 7. Press and release **Esc** or **S** once to go back to the Service Menu screen or press and release **Esc** or **S** twice to go back to the home screen.

Viewing Service Screens e, f & g

- 1. Whilst in the home screen, press and release *Esc* or **S** . The screen will change to the 'Main menu' screen.
- 2. Press and release 1 or \checkmark until 'G. Service' is selected.
- 3. Press and release 4. The screen will change to the Service Menu screen.
- 4. Press and release \uparrow or \checkmark to select the required service screen.
- 5. Press and release ← and enter the four digit password '0022' (Set first digit then press ← to move to the next digit etc). When the last digit has been set press and release ←. Note: This step will not occur if the password has been previously entered within 10 minutes.
- 6. Press and release ↑ or ↓ to navigate between the selected service screen sub screens (if any).
- 7. Press and release *Esc* or once to go back to the Service Menu screen or press and release *esc* or twice to go back to the home screen.

SERVICE SETTINGS SCREEN DEFAULT PARAMETER VALUE TABLE

f. Service Settings Screen	Parameter	Sub Parameter	Master	Slave
	Hour run set 01	Circ.pump	010000H	Screen not available
		Reset counter	No	Screen not available
	Hour run set 02	Compressor 1	010000H	Screen not available
		Reset counter	No	Screen not available
	Hour run set 03	Outdoor fan 1	010000H	Screen not available
		Reset counter	No	Screen not available
	Hour run set 04	Compressor 2	010000H (I)	Screen not available
		Reset counter	No (1)	Screen not available
a. Working Hour Set	Hour run set 05	Outdoor fan 2	010000H ⁽¹⁾	Screen not available
		Reset counter	No (1)	Screen not available
	Hour run set 06	Compressor 3	010000H ⁽²⁾	Screen not available
		Reset counter	No (2)	Screen not available
	Hour run set 07	Outdoor fan 3	010000H ⁽²⁾	Screen not available
		Reset counter	No ⁽²⁾	Screen not available
	Hour run set 08	Compressor 4	010000H ⁽³⁾	Screen not available
		Reset counter	No ⁽³⁾	Screen not available
	Hour run set 09	Outdoor fan 4	010000H ⁽³⁾	Screen not available
		Reset counter	No ⁽³⁾	Screen not available
		S1 offset	0.0barg	0.0barg
		S1 probe	19.3barg	19.3barg
		S2 offset	℃ 0.0	0.0℃
		S2 probe	Actual probe temp	Actual probe temp
	Probe Adjust	32 probe	(°C)	(°°)
	TTODE Adjust	S3 offset	0.0barg	0.0barg
		S3 probe	Actual pressure (barg)	Actual pressure (barg)
		S4 offset	℃ 0.0	0.0℃
b. Probe Adjustment		S4 probo	Actual probe temp	Actual probe temp
		S4 probe	(°°)	(°°)
	Probe Calibration 01	Probe 1 cal.	℃ 0.0	0.0°C
		Probe 2 cal.	℃ 0.0	0.0°C
		Probe 3 cal.	℃ 0.0	0.0°C
		Probe 4 cal.	℃ 0.0	0.0°C
		Probe 5 cal.	℃ 0.0	0.0°C
		Probe 6 cal.	0.0 Bar	0.0 Bar
		Probe 7 cal.	0.0 Bar	0.0 Bar
		Setpoint	30.0 ℃	Screen not available
	Thermoregulation 01	Differential	1.0℃	Screen not available
		Dead band	0.5 <i>°</i> C	Screen not available
	Thermoregulation 02	Initiate	-4 °C	-4 ℃
	(De-ice temperature)	Terminate	10.0 <i>°</i> C	10.0℃
		Delay to start	5m	5m
	Thermoregulation 03 (De-ice timers)	Max duration	15m	15m
		Min between	30m	30m
		Coil de-water	30s	30s
	Thermoregulation 04 (Pump settings)	Flow proof delay	3s	Screen not available
		Pump minimum run	5m	Screen not available
		Pump run on time	1m	Screen not available
The summer state of the state		Temp. test cycle	2.0h	Screen not available
c. Thermoregulation		Flow switch fitted	Yes	Screen not available
	Thermoregulation 04s	Flow switch fitted	Screen not available	No
	Thermoregulation 05	Blackout delay	10s	Screen not available
		Compressor staging	Simultaneous	Screen not available
	Thermoregulation 06 (Enable unit On/Off)	By digital input	No	Screen not available
		By supervisor	No	Screen not available
		By flow switch	No	Screen not available
		Dig input 6 is for:	Comp O/Load	Screen not available
	Thermoregulation 07	HP/LP Safety	HP/LP Safetv	HP/LP Safetv
	<u> </u>	Setpoint SH:	6.0K	6.0K
	Thermoregulat.	LowSH thresh:	0.0K	0.0K
		LOP thresh:	-15.0 <i>°</i> C	-15.0 <i>°</i> C
		MOP thresh:	12.5℃	12.5℃
d. User DEV/Change		Insert new service		
PW1	User Default	password (PW1)	0022	0022

 $^{(1)}$ Parameter only available where 'Manufacturer > Configuration 01 > No. Compressors' = 2, 3 or 4.

 $^{(2)}$ Parameter only available where 'Manufacturer > Configuration 01 > No. Compressors' = 3 or 4.

ALARM INDICATION & TROUBLESHOOTING

CONTROL PANEL ALARM INDICATION

The following indication is displayed when a fault or external control condition is detected.

Alarm	Component	Check		
Probe 1 faulty or wiring open/short circuit ⁽¹⁾	Water inlet temp sensor	Wiring connections at GND & B1		
Frobe Tradity of winning open/short circuit (water met temp sensor	Sensor resistance value		
Probe 2 faulty or wiring open/short aircuit ⁽¹⁾	Water outlet temp concer	Wiring connections at GND & B2		
Probe 2 laulty of winning open/short circuit V	water outlet temp sensor	Sensor resistance value		
Probe 2 faulty or wiring open/short aircuit ⁽¹⁾	Outdoor goil tomp concor	Wiring connections at GND & B3		
Frobe 3 faulty of winning open/short circuit (Outdoor coil temp sensor	Sensor resistance value		
Probe 4 faulty or wiring open/short aircuit ⁽¹⁾	Suction tomp concor	Wiring connections at GND & B4		
Frobe 4 faulty of winning open/short circuit (Suction temp sensor	Sensor resistance value		
Probe 5 faulty or wiring open/short circuit ⁽¹⁾	Current sensor. Not used	N/A		
Probe 6 faulty or wiring open/short circuit ^{(1) (2)}	Suction pressure sensor	Wiring connections at GND, +5VR & B6		
Probe 7 faulty or wiring open/short circuit ^{(1) (2)}	Discharge pressure sensor	Wiring connections at GND, +5VR & B7		
Low Proceure 1 sefety fault	Low proceure switch 1	Is there a low pressure fault?		
	Low pressure switch i	Wiring connections at DIC1 & DI1		
High Brossure 1 sefety foult	High process owitch 1	Is there a high pressure fault?		
High Pressure i safety fault	High pressure switch i	Wiring connections at DIC1 & DI2		
Water flow fault ⁽¹⁾	Water flow switch	Is there a water flow fault?		
		Wiring connections at DIC1 & DI1		

⁽¹⁾ If relevant component is not installed, ensure relevant I/O config component parameter is set to 'NO'.

⁽²⁾ Ensure sensor parameter is set to 'Ratiometric.

OTHER CONTROL PANEL INDICATION

The following indication may also be displayed on the control panel when an external control condition or error condition is detected.

Control Panel Indication	Description	Check
Unit Off by SUPERVISOR	BMS system has turned unit OFF	If no BMS: Go to Menu > Manufacturer > Factory settings > Enable On/Off by Supervisor: No
Unit OFF by Remote in	Remote On/Off on site	If not req: Go to Menu > Manufacturer > Factory settings > Enable On/Off by digital input: No
Unit OFF by FLOW S/W	Water pump off	System water pump is turned ON and is operating.
No Link	Control panel address error	Reprogram address by performing step 1 of 'Initial System Setup Procedure' on page 21.
Disable mask on start up / PGD press enter to change	Control panel button error	Ensure up and down buttons on control panel are not being inadvertently depressed by cover



WIRING DIAGRAM EXAMPLE - HEAT PUMP / CHILLER UNIT

Note: This wiring diagram is provided here as an example only. Always refer to wiring diagram supplied with heat pump or chiller.



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Installation Instructions – Rheem tariff Controller 040919