Rinnai

Installation & User Manual

Pure Control

Auto Pasteurisation Unit

Important.

Read these instructions carefully before attempting installation or use of this appliance. All work must be carried out by competent persons.

Contents

Critical Information And Warnings

IT IS IMPORTANT THAT THIS SYSTEM IS NOT USED IF THERE IS THE POSSIBILITY THAT THE BUILDING IS OCCUPIED DURING THE PASTEURISATION PERIOD.

RINNAI RECOMMEND THAT WARNING NOTICES STATING THE WATER FROM THE TAPS COULD BE HOT.

THESE INSTRUCTIONS MUST BE FULLY READ, UNDERSTOOD AND FULLY COMPLIED WITH. FAILURE TO DO SO COULD LEAD TO PROPERTY DAMAGE AND OR SERIOUS PERSONAL INJURY.

THE FITTING OF THIS APPLIANCE DOES NOT EXEMPT THE PROPERTY OWNER OR LANDLORD FROM NOT FOLLOWING THE DUTY OF CARE AS SPECIFIED WITHIN HEALTH AND SAFETY EXECUTIVE ACOP L8 CONTROL OF LEGIONELLA BACTERIA IN WATER SYSTEMS

THIS UNIT SHOULD ONLY BE INSTALLED BY A QUALIFIED PERSON.

THE USE OF THIS UNIT FOR ANY PURPOSE OTHER THAN FOR WHAT IT IS DESIGNED FOR, WILL NEGATE ANY WARRANTY.

RINNAI ACCEPT NO LIABILITY FOR ANY THIRD PARTY CLAIM THROUGH FAILURE TO FOLLOW THESE INSTRUCTIONS IMPLICITLY.

Functionality of The Pure

This System and Instructions must be used and applied in conjunction with Health and Safety Executive ACOP L8 The Control of Legionella Bacteria as well as any Local by-Laws

The Rinnai PURE system is designed to allow a domestic hot water system fitted with a secondary return system to operate during the buildings occupancy at a safe temperature whilst also allowing the temperature to be raised during periods of un-occupancy to reduce the growth of legionella bacteria.

The Pure Controller works in conjunction with the MC91 controller and the temperature setting of the dipswtiches on the water heater. The secondary return pump is wired through the Pure to allow it to turn the pump on and off.

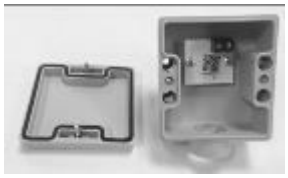
The Pure has 4 different schedule settings that can be programmed in to it which can be set over 7 days and it also has a cool down period which can be set from 15 minutes to 300 minutes. The 4 different settings are as follows
Occupancy On—Building Occupied
Occupancy Off– Building Unoccupied
Pasteurisation On– Pasteurisation Starts
Pasteurisation Off—Pasteurisation Finished.
The cool down period does not let you programme an occupied setting until after the desired duration that is set.

The Pure also utilises and Temperature sensor which is to be fitted directly on to the return pipework or the inlet leg to the water heater. This temperature can be altered when the building is occupied and when it reaches its set pump will turn the secondary pump off.

NOTE IT IS THE INSTALLERS RESPONSIBILITY TO ENSURE THAT THE SYSTEM HAS BEEN REDUCED TO A SAFE TEMPERATURE PRIOR to THE RE-OCCUPANCY, FAILURE TO DO SO COULD LEAD TO PERSONEL INJURY.

Components

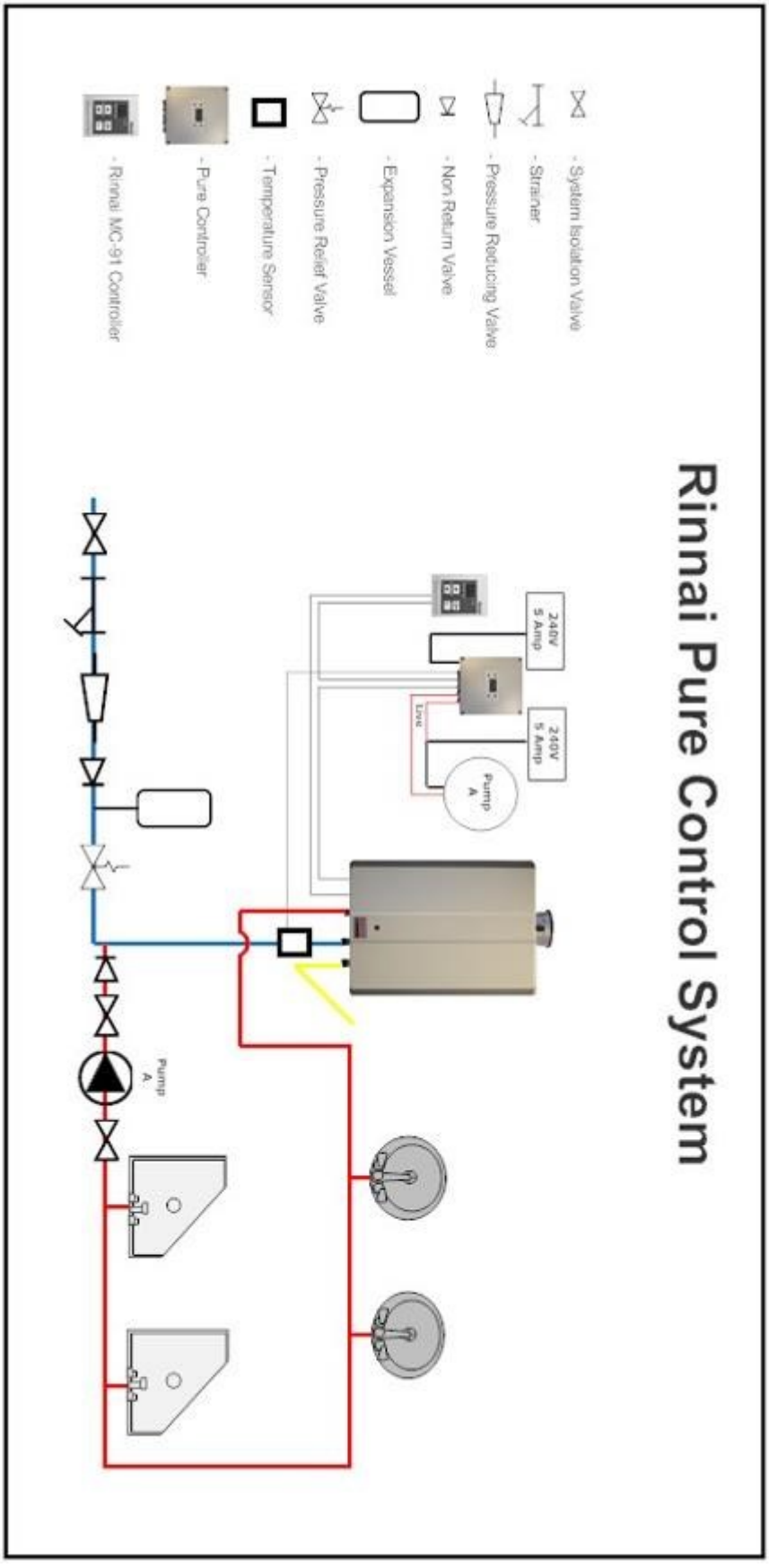
Pure Controller



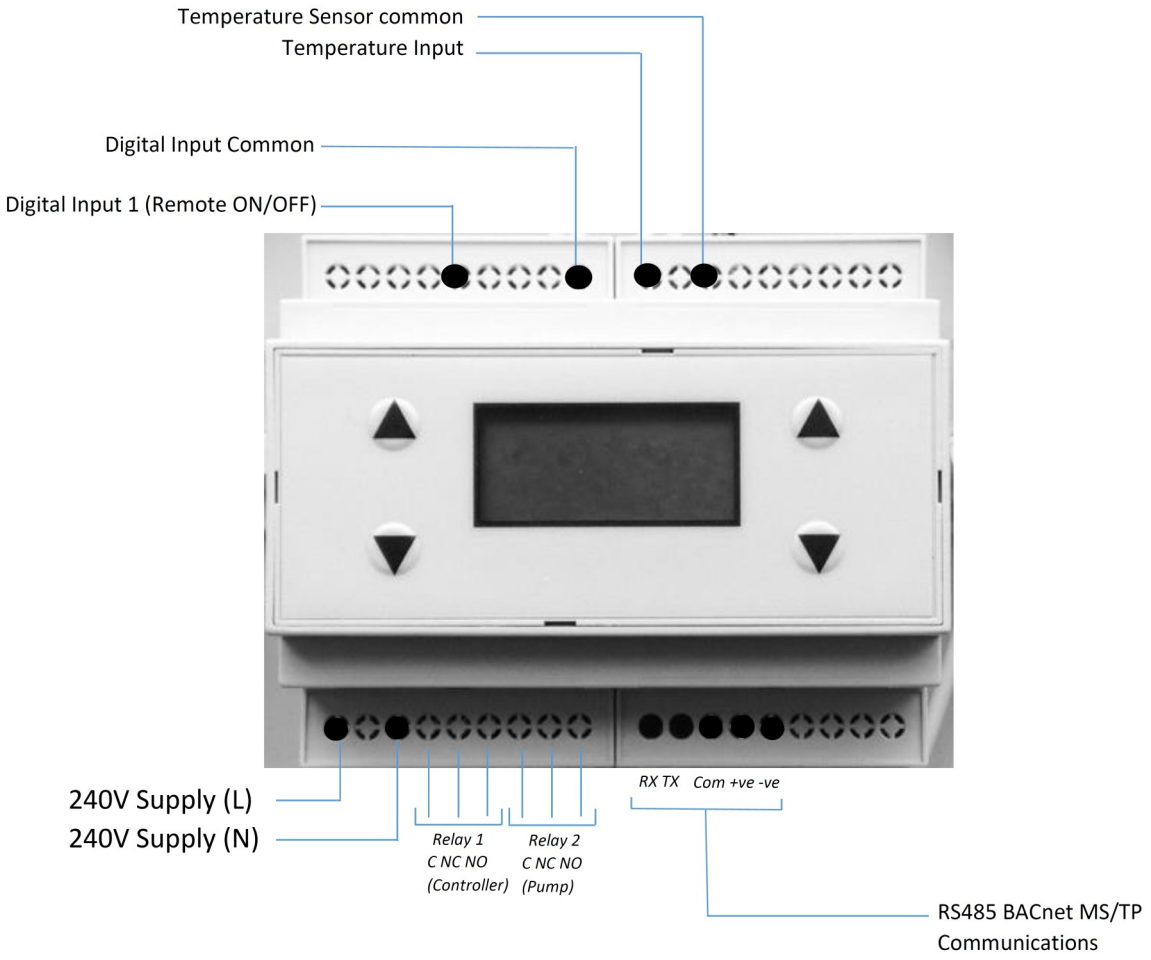
Temperature Sensor

MC91 Controller — Sold Separately

System Schematic



Installation Instructions



Specification:

Power Supply:	240V AC
Temperature Sensor:	Rinnai Custom
Communications:	BACnet MS/TP
Relay Rating:	5amp Max @ 240V
Housing Dimensions	180mm (h) x 182mm (w) x 63mm (d)

Installation Instructions

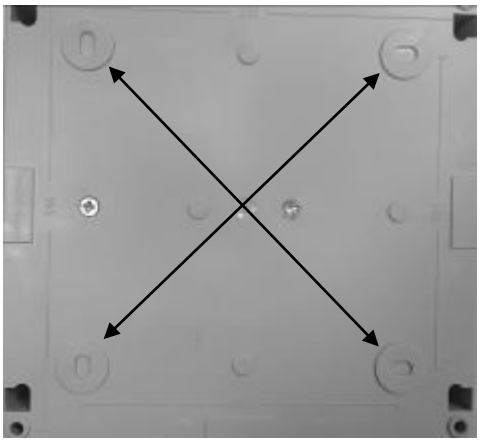
The following items are required for the installation but are not supplied by Rinnai UK. These items are common and can be obtained through any merchants or hardware store.

- 3 Core Flex 1.5mm 5amp rated (length to be determined by installer)
- Fixing screws and wall plugs to mount Pure Controller

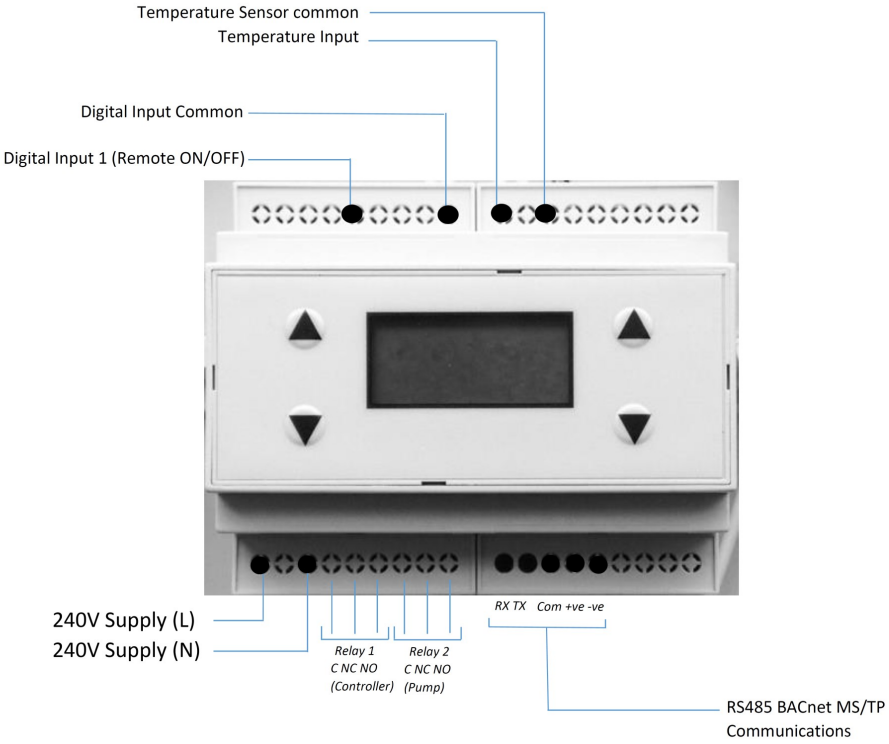
FIG 1

- Remove front panel of Pure Controller
- With a flat head screwdriver pull down the catch circled in FIG 1 and remove the controller body
- Locate the knock out holes on the controller housing (FIG 2) and proceed to make holes for fixing screws
- Place the controller in desired location near to the heater(s) and mark out the holes to drill. Drill the holes and fix the housing to the wall using appropriate fixings (Fixings not supplied)

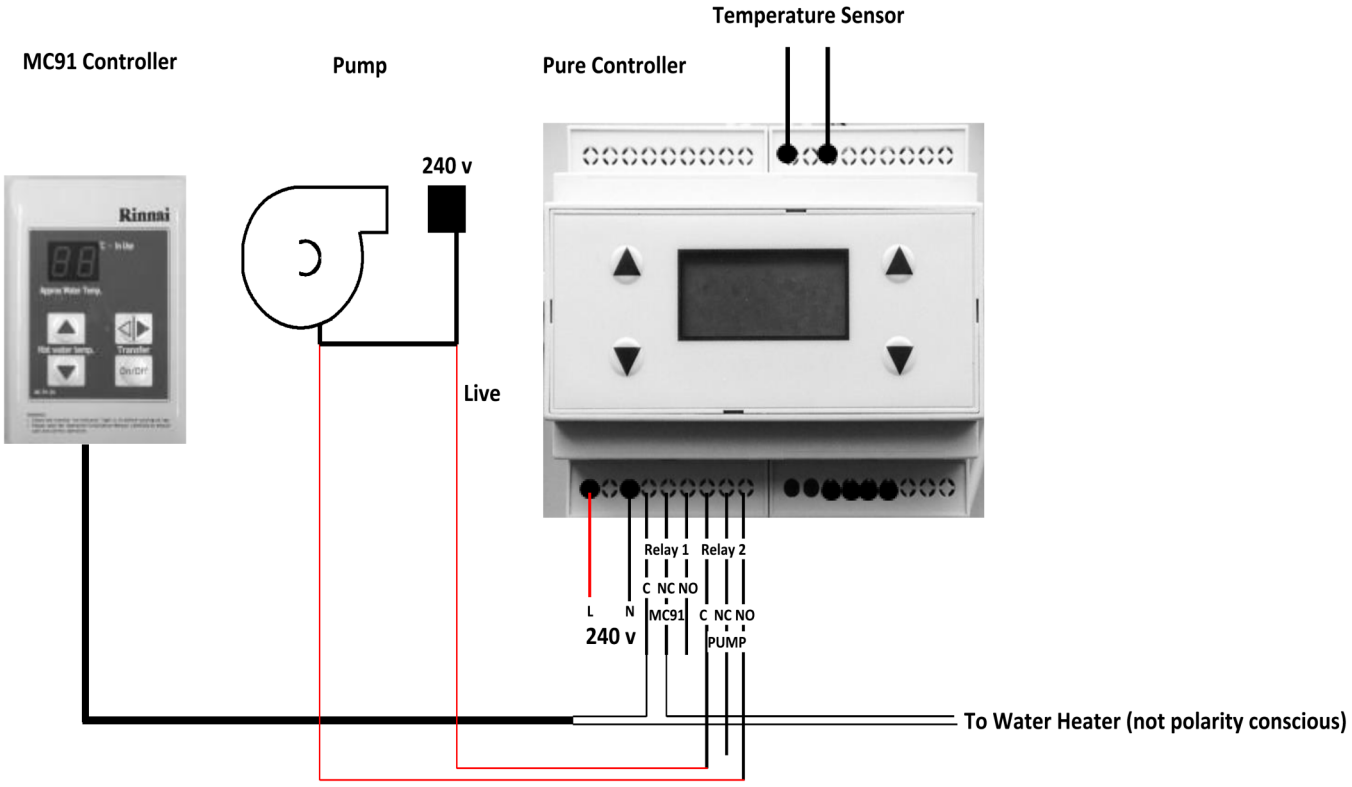
FIG 2



Installation Instructions



Wiring Diagram



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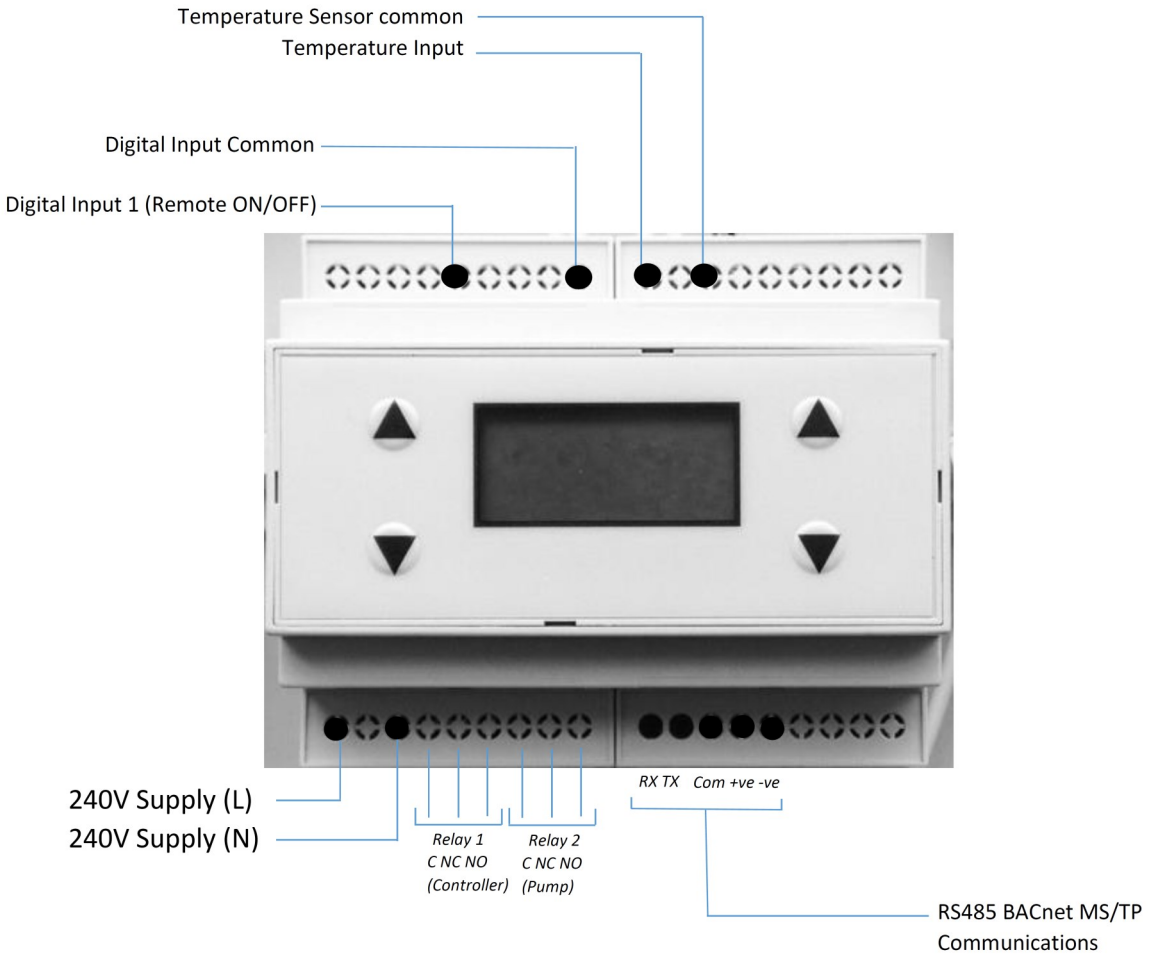


- Wire the temperature sensor using Belden 9841 (0.2mm2) Twisted Pair with Drain wire and foil wrap or equivalent. Must Be suitable for RS485 Standard. Connect to the Temperature senor connections.
- Fit the Sensor to either the return pipework before it connects on to the mains in or if this is too far then it can be fitted on to the cold supply in to the heater. Please note that this sensor must be in direct contact with the pipe and not fitted on top of lagging.
- Wire the Rinnai MC91 through Relay 1. The controller should be connected to C and NC on the controller. You can now connect the controller on to the Rinnai water heater. (These two connections are not polarity conscious)
- Wire the live for the Secondary Return/Recirculation Pump through points C and NO on Relay 2.
- Wire in the 240v Mains supply

Operation Sequence

	Controller	Pump
Occ -	C-NC - ON	C-NO - ON
UnOcc -	C-NC - ON	C-NC - OFF
PasOn -	C-NO - OFF	C-NO - ON
PasOff -	C-NC - ON	C-NC - OFF

Please note that during the pasteurisation cycle the system must be run for a minimum of one hour **ONLY** when the system reaches temperature. The time programmes **MUST** be calculated or tested before the system can be used.
You can programme another Occ to allow the system temperature to drop by using the system heat loss. The water will simply pass through the Rinnai without firing it up as the water will be above the set temperature on the controller. The Rinnai controller must be set at the desired temperature for a 24 hour period to allow this to be saved in to the PCB.

Programing Instructions

Rinnai PURE Interface Buttons

Mode Selection options:

Schedule:

The PURE controller will operate to the programmed schedule that has been set within the controller

Override ON:

The PURE controller will be overridden on to an occupied condition for the override time set in the maintenance menu. During this mode the pasteurisation cycle will not operate.
To set or edit the override time press all four buttons on the PURE controller to enter the maintenance menu, navigate to Global Setting > Override ON. The Override ON setting is adjustable from 15-300 minutes in 15 minute steps.

Temporary Override:

The PURE controller will be OFF until the next scheduled Occupancy ON or Pasteurisation ON period

Permanent Override:

The PURE controller can be set to run in 3 different modes during Permanent Override operation:
1. None – Both Occupied and Pasteurisation control is inhibited.
2. OCC – The PURE controller will always be overridden ON and will operate to the occupied set point. Pasteurisation will not run in this mode.
3. Pas – If set in the schedule, only the pasteurisation will run when called for.

To set or edit the Permanent Override settings, press all four buttons on the PURE controller to enter the maintenance menu, navigate to Global Setting > Override Off.

Programing Instructions

Edit Default Set Points:

To edit the default set points for the Occupancy and Pasteurisation cycles press all four buttons on the PURE controller to enter the maintenance menu, navigate to Global Setting and select either the 'Temp Occ SP' to adjust the occupied default set point or 'Pas SP' to adjust the pasteurisation set point.

Time Schedule set up:

To enter the time scheduling press the top right button on the PURE controller. The below screen will show:

Scheduler

1 Time Update
2 DST
3 Set Date and Time
4 Set Event
5 CAL-Off
6 CAL-On
7 Cool Down
8 Return to previous

Time Update (Manual / System):

This allows the user to set the date manually (manual) or over the network (system).

DST (Yes/No):

This allows the user to select Daylight Saving Time. DST is only available when manually updating the time.

Set Date and Time:

The user can set the correct time and date.

Set Event:

The user can set their events within the time schedule. The events include:

Occupancy ON – When an occupied period will begin.
Occupancy OFF – When an occupied period will end.
Pasteurisation ON – When a pasteurisation period will begin.
Pasteurisation OFF – When a pasteurisation period will end.

Note: A pasteurisation period cannot be set between an occupied ON and occupied OFF period. An occupancy ON cannot be set until after a Pasteurisation OFF + Cooling down period.

CAL-Off
CAL-On
Cool Down:

This is the minimum time the controller will allow between Pasteurisation Cycle and an Occupied Cycle. This is adjustable by the user and should be set before any time scheduling events are programmed. *If the cool down period is edited all time programmed events will be reset.*

Programing Instructions

Setting a scheduled event:

To set an event, enter the schedule screen and select Set Event. The following menu will appear. Use the left buttons to highlight line 1 'Weekly Schedule', and then press a mode button on the right.

Set Event	
1	Weekly Schedule
2	Exceptions
3	Return to Previous

The following menu with the Weekly Schedule day list will be displayed

Weekly Schedule	
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday
9	Return to Previous

In the Weekly Schedule menu, use the temperature adjust buttons on the left side to scroll through to the day required. With the day required highlighted, press the mode button on the right hand side. The following day menu with setting options will appear (example shows Monday is selected).

Monday		
1	Copy from	None
2	Add Entry	
3	Clear All	
4	Return to Previous	

Add Entry:

This allows the user to add a time scheduled event. In the selected Day menu select line 2 'Add Event' and press the mode button to view the Edit Event Menu.

Edit Event		
1	Time	08:30
2	Value	Occ / UnOcc / PasON / PasOFF
3	Delete and Return	
4	Confirm and Return	
5	Return to Previous	

In the Edit Event menu, to set a time to correspond with an event select line 1 and use the temperature up and down arrows on the left hand side of PURE controller to highlight the Time figure you want to change. Once highlighted, use the right hand side mode buttons to adjust the time (hours then minutes).

Once the time is entered, highlight line 2 'Value' and select your event (occupied, unoccupied, pasteurisation on or pasteurisation off). Once entered use the temperature adjust buttons to scroll to Confirm Entry and press the mode buttons to save the entry made.

After an ON period is set and confirmed, the user can now set an OFF time. Click Add Entry again and use the right hand side mode buttons to adjust the time (hours then minutes) again.

Once the time is entered, using the left buttons scroll and highlight line 2 'Value'. Now with the mode buttons enter OFF (which is the end of the programmed ON period). Once entered use the temperature adjust buttons to scroll to Confirm and Return to save the entry made.

It is not possible to set an Occupancy ON within a Pasteurisation cycle or a Pasteurisation ON within an occupied cycle. The Occupancy ON period can only be set after the Pasteurisation cycle has finished and the cooling down period (set in the maintenance screens) has ran.

The completed programmed ON and OFF period is now set. You can enter up to 6 x On/Off events for each day of the week.

Once all event schedules for the day have been added select Confirm Entry and Return to exit this menu.

Note: If a day schedule is set and is to be repeated on other days then you can use the Copy From feature which automatically copies across a day's schedule to another day. See below.

Copy from:

This allows the user to copy existing day schedules to the day that has been selected.
Highlight line 1 'Copy from' then use the mode button on the right to select the option. The following menu with setting options will appear (example shows Monday is selected).

Monday			
	1	Copy from	Tuesday
	2	Confirm Copy	
	3	Return to Previous	

With the left hand temperature buttons highlight line 1 'Copy From' then with the right hand mode buttons scroll through the days until the desired day is shown. With the left hand temperature buttons now select 'Confirm Copy' then press the mode buttons to confirm.

This action copies all the time scheduled events from one day to another and is useful if the time schedules are the same for each day of the week.

Once 'Copy From' and 'Confirm Copy' actions are complete, with the left hand buttons select 'Return to Previous' to continue the entry of Time Schedules.

To delete a time scheduled event:

- Select the day required in the Weekly menu
- Select the time event in the Day menu
- Select Delete Entry in the Edit Event menu and press the mode button.
- To delete an Occupancy or Pasteurisation On/Off cycle, both the ON and OFF events for the cycle need to be deleted.

To delete the time schedules for a whole day.

- Select the day required in the Weekly menu
- Select line 3 **Clear All**
- Press the mode button to clear all time events for the selected day.

Monday		
1	Copy from	None
2	Add Entry	
3	Clear All	
4	Return to Previous	

Exceptions:

Exceptions allow the occupant to set specific days or date ranges that they do not wish the controller to follow the time schedules that have been set. This is particularly useful for holiday periods which can be pre-programmed.

In the main Scheduling menu select Set Event and the following menu appears:

Set Event	
1	Weekly
2	Exceptions
3	Return to Previous

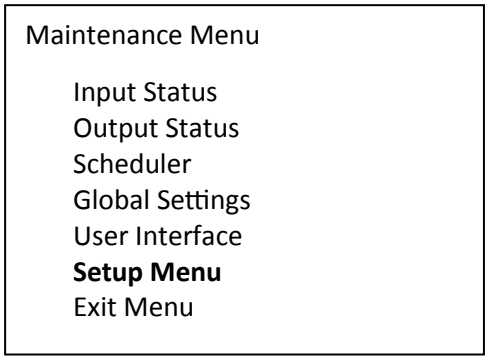
Exceptions can be set for a specific date or date range. For more detailed information on the exceptions please refer to the PURE user screen document.

Programing Instructions

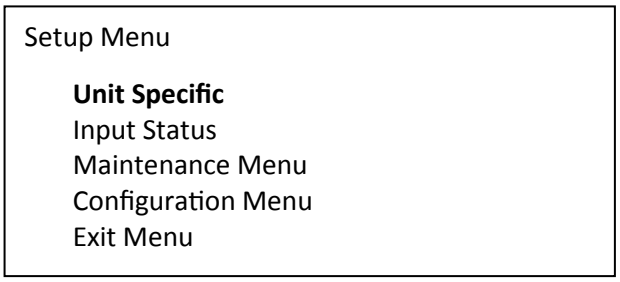
BACnet Communication Settings:

The Rinnai PURE controller is capable exposing data over a BACnet MS/TP network. It is important that each device has the correct network settings. Follow the below instructions to do this:
NOTE: Incorrect network settings will result in a conflict of communications and prevent the Gateway from operating correctly.

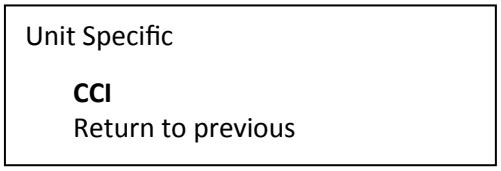
1. Press and hold all 4 buttons on the PURE controller for approx. 5 seconds. The maintenance screen will show.



2. Using the left hand buttons scroll down to the Setup Menu option. Once highlighted, select this option with the top right hand side button on the Pure Controller.
3. Select Unit Specific using the top right button again.



4 Select CCI. This will show the current software and Network settings of the PURE Controller



Programing Instructions

5. Set a unique device ID and MAC address (1-127) for the PURE controller. These needs to be different than any other products on the network. The correct baud rate will also need to be set to ensure the communications operate correctly.

CCI Settings

Device ID	**0000000**
MAC	**050**
Baud	**38400**
Location	unknown
Model	CCITP1203F
Firmware	4.24
Software	PURE1.0

Return to previous

6. Once all the above have been set, use the left hand buttons to highlight ‘return to previous’ and select with the top right button to cycle out of the screens.

7. When prompted, ensure that all changes are saved when exiting the settings. Select ‘Yes’ via the top right button.