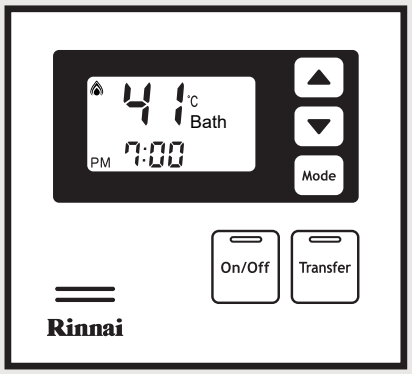
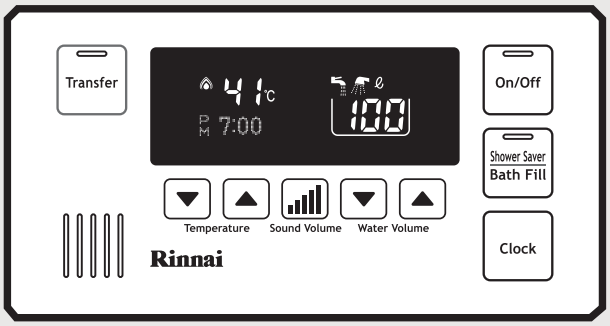
Your guide on how to use and install Rinnai Deluxe water controllers
This guide is for the use and installation of Rinnai Deluxe water controllers, models MC-100V1Z and BC-100V1Z.

These instructions must be used in conjunction with the Rinnai water heater operation and installation guides.

The Deluxe water controllers are compatible ONLY with the Rinnai water heaters shown on p. 4.

To confirm the maximum number and combination of controllers that can be fitted to your Rinnai INFINITY refer p. 5.





INFINITY Kitchen and Bathroom Deluxe controllers

Operation and installation guide

Rinnai

Important

Rinnai INFINITY water controllers must be installed in accordance with:

- Manufacturer's installation instructions

Current:

- AS/NZS 5601 Gas Installations
- AS/NZS 3000 Electrical Standards
- AS/NZS 3500 Plumbing and Drainage Standards

Installation, servicing and repair shall be carried out only by authorised personnel.

Warning
Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life.

For more information about buying, using, and servicing of Rinnai appliances call: 0800 RINNAI (0800 746 624).

Rinnai New Zealand Limited
105 Pavilion Drive, Mangere, Auckland
PO Box 53177, Auckland Airport, Auckland 2150

Phone: (09) 257 3800
Email: info@rinnai.co.nz
Web: www.rinnai.co.nz
www.youtube.com/rinnainz
www.facebook.com/rinnainz

Contents

Warning about hot water

Excessively hot water is dangerous. Rinnai INFINITY continuous flow water heaters, through the use of water controllers, allow you to control the temperature of hot water to safe levels.

Always

- Test the water temperature with your elbow before placing your child in the bath, and feel the water yourself before bathing or showering.
- Supervise children whenever they are in the bathroom.
- Make sure the hot water tap is turned off.

Consider

Installing child proof tap covers or child resistant taps, both will prevent a child being able to turn on a tap.

Never

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

Water controller compatibility

The deluxe controllers are compatible with the current range of Rinnai INFINITY models, these are:

- Rinnai INFINITY A-Series
- Rinnai INFINITY EF26
- Rinnai INFINITY HD
- Rinnai INFINITY N-Series

For compatibility with older superseded models, please refer to the deluxe controller product page on the website www.rinnai.co.nz.

Important

- Controllers cannot be installed in solar or other applications where the Rinnai INFINITY dip switch setting is increased to above 65 °C
- Controllers cannot be installed in ring main applications using the N-Series
- The Bathroom Deluxe controller bath fill function will not work in applications where HD units have been connected together with an EZ Connect cable

Water controller configurations

A maximum of **four** (three for the N-Series) water controllers can be fitted, with the following provisos:

- Only ONE master controller can be installed. This can be a MC-100V1Z or a MC-601 (Universal controller). If a MC-100V1Z is fitted it will always function as a master controller.
- Up to a maximum of two Bathroom Deluxe controllers can be installed.
- The fourth controller in any installation MUST BE a MC-601 Universal controller (not applicable for the N-Series).

Water temperature control

Controllers allow precise temperature control by the user. When used correctly, the hot water unit will deliver the selected water temperature, even when the water flow is varied, or when more than one tap is in use.

Only the Kitchen Deluxe controller can be designated as the master water controller, typically, as the name suggests, the location for this is in the kitchen. All the remaining controllers are designated sub-controllers and are for use in bathrooms, toilets, and laundries. The maximum temperature for sub-controllers is 50 °C, to minimise the risk of burns.

Any controller that has priority is capable of setting the water temperature to be delivered. Priority can only be given to one controller at a time, and changing priority can only be done when all hot water taps have been closed.

Available controller temperatures are:

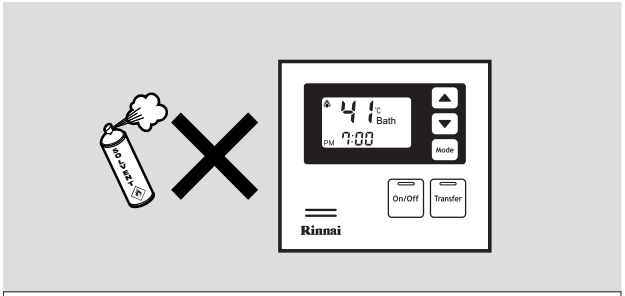
Controller	**Temperature °C**
Kitchen	37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 50, 55, 60*, 65*, 75*
Bathroom (hot water)	37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 50
Bathroom (bath fill)	37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48

* Some Rinnai water heaters can be programmed to deliver higher temperatures from the master water controllers, i.e. in commercial applications

To obtain water temperatures lower than 37 °C, open the cold water tap and add cold water until the desired lower temperature is reached.

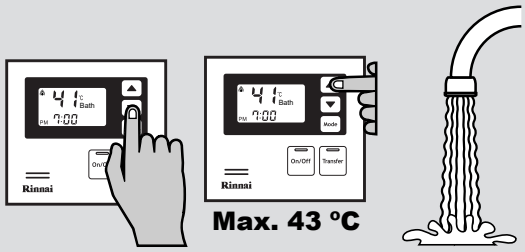
The hot water temperature is constantly monitored by a built-in sensor. If the hot water temperature rises to more than 3 °C above the selected temperature, the burner will automatically go out. The in-use indicator on the controller display will also go out. The burner will ignite again once the outgoing hot water temperature reaches the temperature set on the controller.

General controller information

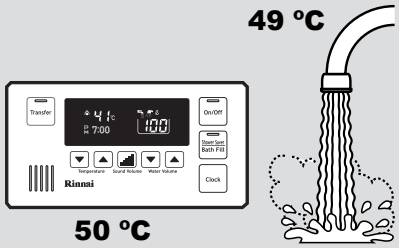


Cleaning
To clean your controller, use a soft damp cloth and mild detergent.

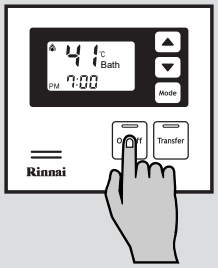
DO NOT use solvents.



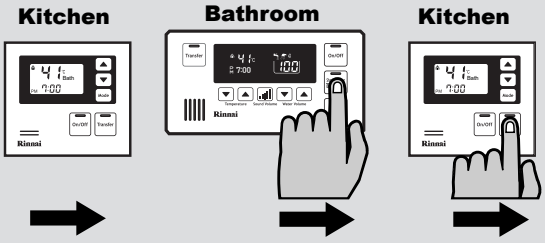
Maximum temperature
While hot water outlets are open the set temperature may be lowered, but not raised above 43 °C, and transfer between controllers is not possible. These are safety features.



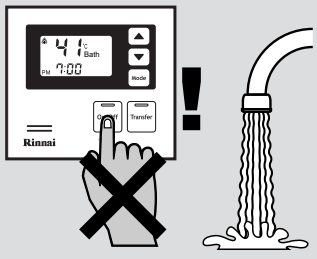
Temperature variation
Depending on weather conditions and the length of pipe between the Rinnai INFINITY and the outlet in use, there may be a variation between the temperature displayed at the water controller and at the water outlet.



No need to turn off
There is no need to turn the controller off after use.

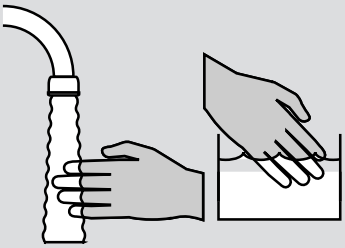


Kitchen default 50 °C
As a safety precaution, if a kitchen controller temperature is set above 50 °C, transferring and then returning priority will result in a default set temperature of 50 °C. This is a safety feature.

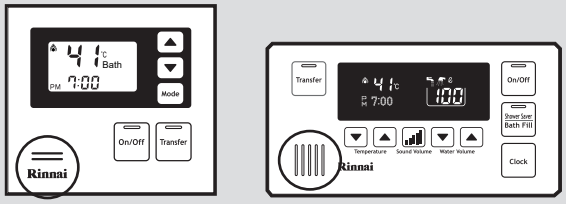


Do not press On / Off when in use
Do not push the On / Off button when the red water heater In Use indicator is on. This will turn off the water heater causing the water to go cold.

55 °C maximum
Temperatures higher than 55 °C should not be able to be selected on controllers installed in bathrooms, ensuites, or toilets. This is to reduce the risk of burns from hot water. If this is not the case, the controllers have been incorrectly installed and you should contact your installer.



Always check before use
Check the water temperature before use. A parent or carer should ALWAYS check the temperature before a child is placed in contact with hot water.



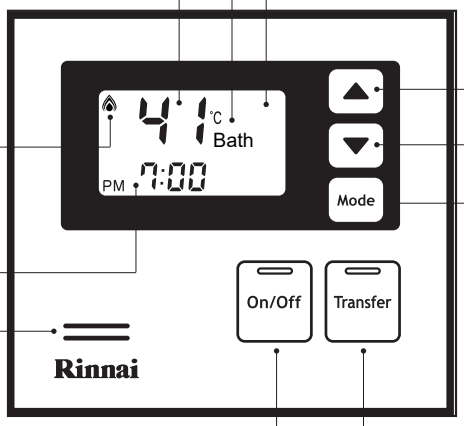
Avoid water in the speaker
Avoid getting water directly into the speaker (circled in images above) as this may cause damage.

Controllers need to be turned on for delivery of hot water
The water heater will not heat the water unless the controller(s) are turned on. If water is flowing before the controller is turned on, the water heater will not heat the water. Turn off the tap for a few seconds, then turn on again.

Ignition problems
If the water heater fails to ignite, the In Use button will not illuminate. The water heater will not attempt re-ignition until water flow is stopped for a few seconds and then re-started.

When gas bottles have been changed or the gas supply is disrupted (controller may display error code 11 or 12) ignition may fail and the In Use button will not illuminate. The water flow may need to be stopped and re-started several times to get the water heater to work.

Kitchen Deluxe controller operation (MC-100V1Z)



Shower saver / bath fill
Indicates the shower saver / bath fill function is operating

Water temperature indicator
Indicates the selected hot water temperature

In use indicator
Indicates the water heater is in operation and delivering hot water

Clock
12-hour AM / PM clock display.

In the event of a fault error codes will flash here.

Speaker

On / Off
Used to switch the water heater on and off. Button is illuminated when the controller has priority.

Digital monitor

Up and down buttons
When in 'normal' mode these are used to select the water temperature.

In setup mode these buttons are used to adjust the voice prompt volume and to set the clock.

Mode
Used to switch the controller between normal, voice, or clock modes.

Transfer
Used to transfer priority between the controllers. The controller with priority has command of the hot water delivery temperature. This button is illuminated when the controller has priority.

Turning on

If the controller is switched off (no digits displayed in the digital monitor), press the On/Off button once. The On/Off and Transfer buttons illuminate to indicate that the hot water unit will be ready to supply hot water once a hot water tap is opened.

Adjusting the temperature

Select the desired temperature using the up or down buttons until the required temperature is displayed.

To operate the hot water unit, open any hot water tap. This will automatically light the burner providing hot water. The water heater In Use indicator will illuminate on the controller.

Once the hot water is running, if the set temperature is either too hot or cold, press the up or down buttons until the desired temperature is reached.

IMPORTANT

While hot water outlets are open, the set temperature may be lowered, but it can't be raised above 43 °C. In addition, transfer of priority between controllers is not possible. These are safety features.

Transferring priority

To control the water delivery temperatures when using two or more controllers transfer the priority to the controller you wish to use.

Illuminated On/Off and Transfer buttons confirm that the desired controller is in control of the water delivery temperature. If the On/Off button is not illuminated, press the Transfer button once, the On/Off and Transfer buttons will illuminate indicating that the hot water temperature control has been transferred and that the hot water unit will be ready to supply hot water once a hot water tap is opened.

Setting the sound options
To set the sound options, press the Mode button once to place the controller into ‘voice’ mode. Use the up and down buttons to select one of the desired audible settings as follows:

- High
- Medium
- Low
- Off (sound off mutes all voice prompts and audible tones)

Press the Mode button twice to return to normal operation. If no buttons are pressed for approximately ten seconds the controller will return to normal operation.

Setting the clock
The clock is a 12-hour AM/PM style display.

To set the time, press the Mode button twice, this places the controller into ‘clock setting’ mode and in the digital display the word Clock will be displayed and the clock digits will flash.

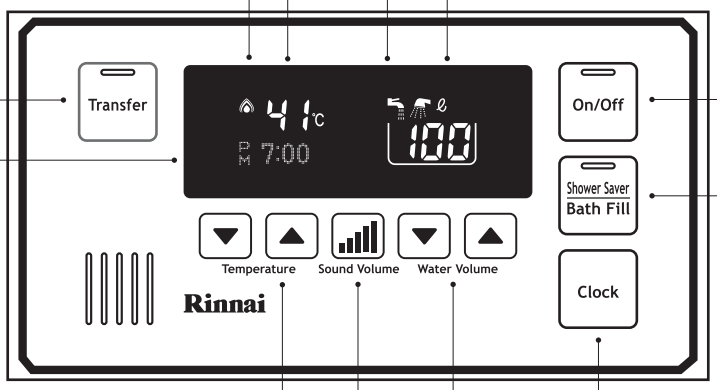
Use the up or down buttons to select the time, holding these buttons down continuously cycles the digits. When you get close to the time you wish to set, press the button intermittently to avoid going further than the desired time.

To return to normal operation, press the Mode button once. If no buttons are pressed for approximately 60 seconds the controller will return to normal operation.

The time is always displayed regardless of whether the controller is turned on or off.

The clock may need resetting if power to the water heater is disrupted due to a power failure or if the power is switched off over a prolonged period. The default time is set to AM 12:00.

Bathroom Deluxe controller operation (BC-100V1Z)



Water temperature indicator
Indicates the selected hot water temperature

In use indicator
Indicates the water heater is in operation and delivering hot water

Transfer
Used to transfer priority between the controllers. The controller with priority has command of the hot water delivery temperature. This button is illuminated when the controller has priority.

Clock and remaining water volume indicator
12-hour AM/PM clock display.

Indicates how much water remains to flow for the selected shower saver / bath fill—decreases while the bath fills / shower runs.

Up and down buttons
When in 'normal' mode these are used to select the water temperature.

In setup mode these buttons are used to adjust the voice prompt volume and to set the clock.

Shower saver / bath fill
Indicates the bathfill / shower saver function is operating

Water level indicator
Indicates bathfill / shower saver volume selected

On / Off
Used to switch the water heater on and off. Button is illuminated when the controller has priority.

Shower saver / bath fill button
Illuminates when selected

Clock
Used to select clock setting mode

Water volume selection
Used to select shower saver / bath fill volume

Sound volume button
Used to select the voice and audible tone options

Turning on

If the controller is switched off (no digits displayed in the digital monitor), press the On/Off button once. The On/Off and Transfer buttons illuminate to indicate that the hot water unit will be ready to supply hot water once a hot water tap is opened.

Adjusting the temperature

Select the desired temperature using the up or down buttons until the required temperature is displayed.

To operate the hot water unit, open any hot water tap. This will automatically light the burner providing hot water. The water heater In Use indicator will illuminate on the controller.

Once the hot water is running, if the set temperature is either too hot or cold, press the up or down buttons until the desired temperature is reached.

While hot water outlets are open, the set temperature may be lowered, but it can't be raised above 43 °C. In addition, transfer of priority between controllers is not possible. These are safety features.

Transferring priority

To control the water delivery temperatures when using two or more controllers transfer the priority to the controller you wish to use.

Illuminated On/Off and Transfer buttons confirm that the desired controller is in control of the water delivery temperature. If the On/Off button is not illuminated, press the Transfer button once, the On/Off and Transfer buttons will illuminate indicating that the hot water temperature control has been transferred and that the hot water unit will be ready to supply hot water once a hot water tap is opened.

Setting the sound options
To set the sound options, press the Mode button once to place the controller into 'voice' mode. Use the up and down buttons to select one of the desired audible settings as follows:

- High
- Medium
- Low
- Off (sound off mutes all voice prompts and audible tones)

Press the Mode button twice to return to normal operation. If no buttons are pressed for approximately ten seconds the controller will return to normal operation.

Setting the clock
The clock is a 12-hour AM/PM style display.

To set the time, press the Mode button twice, this places the controller into 'clock setting' mode and in the digital display the word Clock will be displayed and the clock digits will flash.

Use the up or down buttons to select the time, holding these buttons down continuously cycles the digits. When you get close to the time you wish to set, press the button intermittently to avoid going further than the desired time.

To return to normal operation, press the Mode button once. If no buttons are pressed for approximately 60 seconds the controller will return to normal operation.

The time is always displayed regardless of whether the controller is turned on or off.

The clock may need resetting if power to the water heater is disrupted due to a power failure or if the power is switched off over a prolonged period. The default time is set to AM 12:00.

Setting shower saver / bath fill
This function allows a preset water volume and temperature to be selected and run automatically.

Default settings:
- Temperature = 40 °C
- Volume = 100 L (range 30-400 L)

Press the Shower Saver / Bath Fill button once. The button will illuminate and the voice prompt and tone will sound. Ensure you have the voice and sound turned on.

To select the temperature use the Temperature up and down buttons. The selected temperature will be displayed on the monitor and will remain as the default temperature until it is changed.

When filling a bath for the first time, it is recommended that a low bath fill volume such as 60 L or lower be used. During subsequent bath fills the volume can be adjusted.

A volume counter, to highlight the remaining volume of water to be delivered, displays on the controller below the temperature display, replacing the clock when the shower saver / bath fill function is on.

When filling the bath or if the water has been turned off

Be careful not to overfill the bath. An average bath volume is 160 L. It is recommended that when filling a bath for the first time you should:

- remain by the bath during the filling process
- use a low bath fill volume such as 60 L or less

If the shower saver / bath fill is interrupted (water is turned off) for any reason and there is more than half the volume of the set amount of water delivered, the shower saver / bath fill will reset itself back to normal when the operation is turned on again, refer examples below.

Set volume	Delivered volume (bath fill interrupted, tap closed)	Delivered volume (bath fill restarted, tap turned on again)
160 L	50 L	110 L
160 L	110 L	Resets back to normal operation, bath fill will only be 110 L

Using shower saver / bath fill

Press the shower saver / bath fill button once. The button will illuminate and a voice prompt and tone will sound. During shower saver / bath fill, the bath indicator will also be displayed on the Kitchen Deluxe controller.

The voice prompt will say '*The hot water system is ready. Open the hot water tap*'. Open the hot water tap for the shower or bath.

To stop the shower saver / bath fill

To stop the water flow while in shower saver / bath fill, press the Shower Saver / Bath Fill button. The button will flash and a voice prompt will say '*Hot water is not available. Turn off all hot water taps and push the bath fill button*'—follow the voice prompt instructions.

When shower saver / bath fill operation finishes

Once shower saver / bath fill is finished the following occurs:

1. Flow from the shower / bath stops
2. Shower Saver / Bath Fill button flashes
3. Kitchen Deluxe controller if fitted will flash with a bath indicator
4. A tone will sound
5. A voice prompt will say '*Bath fill is complete. Turn off the bath hot water tap and push the Bath Fill button*'

Follow the voice prompt instructions. Please note that the water heater will not allow hot water to flow from any fixture until the Shower Saver / Bath Fill button has been pressed.

Using multiple controllers

The Rinnai INFINITY can be turned on and off at any water controller. If more than one controller is fitted, press the Transfer button to transfer priority to the desired water controller.

Water controller installation

General information
Other manufacturers water controllers are NOT compatible with Rinnai water heaters. Water controllers MUST NOT be used with any solar boost water heater, or N-Series ring main applications.

Rinnai water controllers bought in from other countries are not compatible with Rinnai appliances sold in New Zealand.

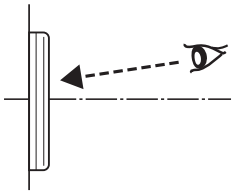
Controller configurations
Refer p. 5.

Controller location
- Do not install water controllers near a heat source, such as a cook top, stove or oven—heat, steam, smoke, and hot oil may cause damage
- Do not install water controllers outdoors unless protection from water/dust ingress and sunlight are provided
- The Kitchen Deluxe (MC-100V1Z) controller MUST NOT be installed in a bathroom
- Do not install water controllers in direct sunlight
- Do not install water controllers against a metal wall unless the wall is earthed in accordance with AS/NZS 3000
- Water controllers must not be installed where chemicals such as benzene, alcohol, turpentine, hydrogen sulphide, ammonia, chlorine or similar chemicals are in use

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

- Avoid direct exposure to water or steam as these may cause the controller to malfunction
- Water controllers must be installed in shaded clean locations. They should be fitted out of reach of children (recommended height 1.5 m from the floor), and installed at least 400 mm above the highest part of a sink, basin or bath.

The deluxe controllers use a liquid crystal display (LCD) for the digital monitor. Light reflection can make the LCD difficult to see at direct eye level. For best results mount the controller lower than eye level.



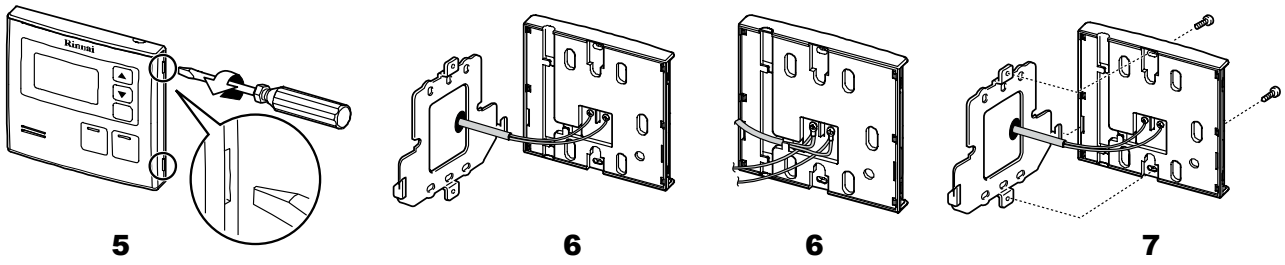
Communication cables
Controllers operate at an extra low voltage (12 V DC), which is supplied from the water heater. A 10 m communication cable is supplied for connection to the water heater. ONLY Rinnai supplied communication cables may be used. Additional 10 m cable can be purchased.

Additional 10 m cable codes:
- Kitchen Deluxe R1369
- Bathroom Deluxe R1069

Mounting the Kitchen Deluxe controller (MC-100V1Z)

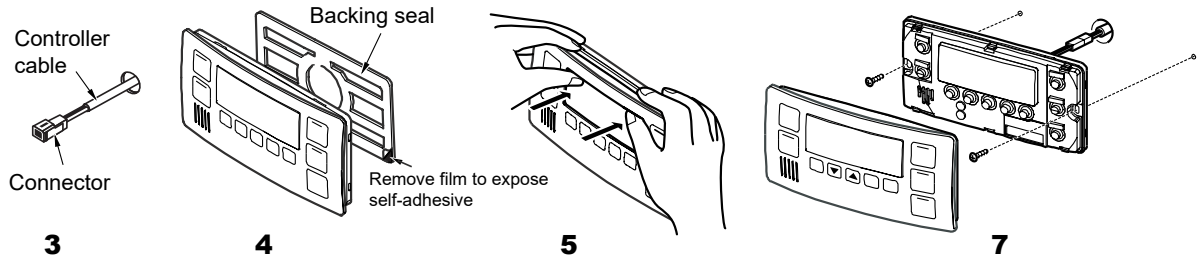
1. Determine the position of the controller.
2. Using the wall mounting bracket as a template, mark and drill three holes (mounting and cable access), refer dimensions on next page.
3. Fix the mounting bracket to the wall using the appropriate fixings.
4. Run the cable through the hole in the wall.
5. Carefully remove the face plate from the controller using a screwdriver.
6. Connect the cable to the controller. At this point cables from other controllers may also be connected to the screw terminals of the kitchen controller, eliminating the need for multiple cable runs directly to the water heater.

   Controllers are not polarity sensitive. Feed excess cable lengths into the wall cavity to avoid pinching the cables.
7. Fasten the controller to the wall mounting bracket. Avoid over-tightening the fixings as this may cause damage. Once secure replace the face plate.



Mounting the Bathroom Deluxe controller (BC-100V1Z)

1. Determine the position of the controller.
2. Using the wall mounting bracket as a template, mark and drill three holes (mounting and cable access), refer dimensions on next page.
3. Run the cable through the access hole ensuring the connector end of the cable to located nearest to the controller.
4. Put the double sided self-adhesive seal to the back of the controller.
5. Remove the face plate from the controller, do this by placing your thumbs on the front of the display, and while hooking your fingers behind the top of the plate gently push—DO NOT use a screwdriver as this may damage the controller.
6. Connect the cable to the water heater. Feed any excess cable length into the wall cavity to avoid pinching the cables.
7. Fix the controller to the wall using the appropriate fixings. Avoid over-tightening the fixings as this may cause damage. Once secure replace the face plate.



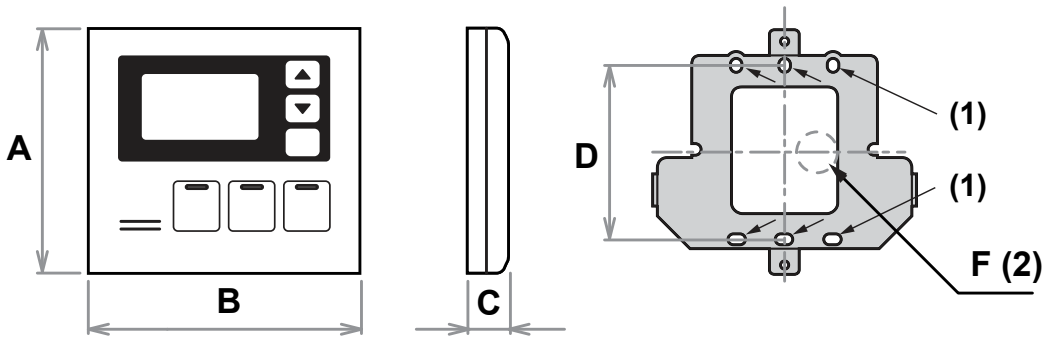
Dimensions

		Kitchen Deluxe MC-100V1Z	Bathroom Deluxe BC-100V1Z
A	Height	120 mm	104 mm
B	Width	128 mm	202 mm
C	Depth	20 mm	22 mm
D	Vertical mounting hole centre	83 mm[1]	-
E	Horizontal mounting hole centre	-	181 mm
F	Cable access hole size / position	Ø20 mm[2]	Ø20 mm centre

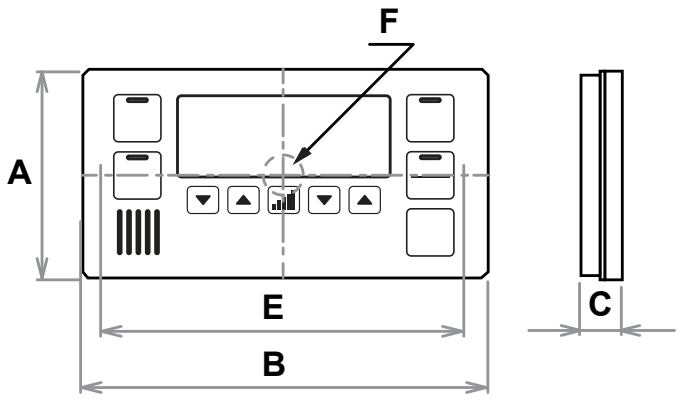
[1] The MC-100V1Z uses a metal mounting bracket that has three mounting points both on and either side of the vertical centreline.

[2] The MC-100V1Z cable access is horizontally offset to the right of the centreline, inside the metal mounting bracket, refer image below.

Kitchen Deluxe (MC-100V)



Bathroom Deluxe (BC-100V)



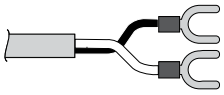
A-Series controller communication cables

Wired water controllers operate at an extra low voltage (12 V DC) which is supplied from the water heater, a 10 m long communication cable is supplied for connection to the water heater. Only Rinnai supplied communication cables may be used.

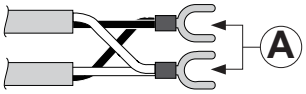
The water heater end of the cables is fitted with spade terminals. Only two pairs of cables (four spade connectors in total) may be terminated. When attaching three or four cables it is necessary to join the cable terminators as shown below.

For each pair cut off the existing spade connectors and re-terminate each pair into a new spade connector (A). Spade connectors are available from your local electrical component retailer

Single cables can be used when terminating up to two communication cables.



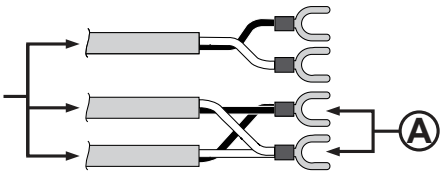
Paired cables are to be used when terminating three or four communication cables.



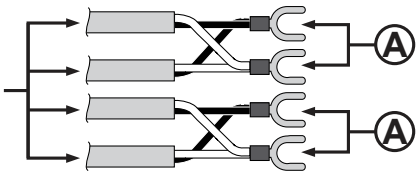
Connecting one or two communication cables
Follow steps one through five below to terminate the cables to the water heater.

Connecting three or four communication cables
To connect three or four cables, separate all the cables to be fitted into pairs.

When terminating three cables



When terminating four cables



Follow steps one through five below to terminate the joined cable pairs to the water heater.

1. Isolate the power supply by switching the power point off and removing the power plug of the water heater from the electric power socket.

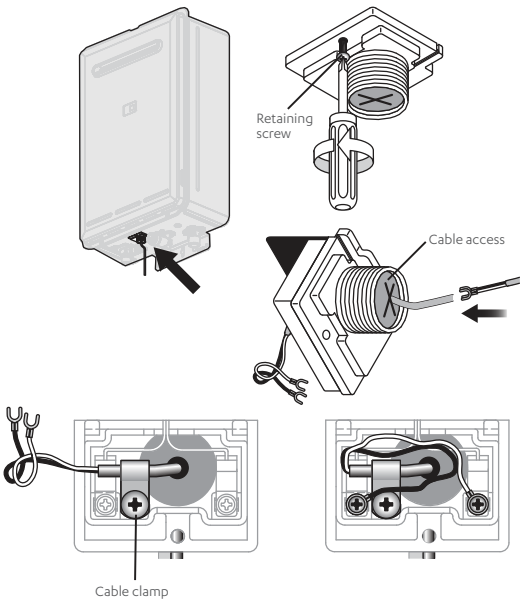
2. Removing the retaining screw of the cable connector at the base of the unit.

3. Swing the cable connector door open and thread the cable through the weather seal of the cable access hole, allowing sufficient cable length so that the sheath of the cable can be secured with the cable clamp supplied with the transceiver.

4. Loosen the screw terminals and connect the cable spade connectors to these terminals and re-tighten.

   Polarity is not important, either wire colour can be connected to either terminal.

5. Return the cable connector to the original position, taking care not to damage the cable wires in the process, and replace the retaining screw.



EF26 controller communication cables

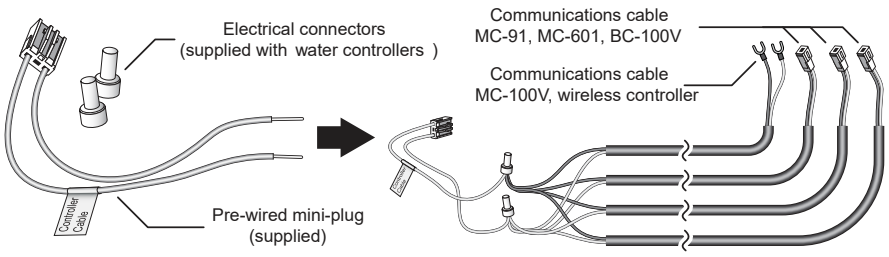
Wired water controllers operate at an extra low voltage (12 V DC), which is supplied from the water heater. A 10 m long communication cable is supplied for connection to the water heater. Only Rinnai supplied communication cables may be used.

Connecting communication cables to the mini-plug

CAUTION DO NOT attempt to connect water controller cables to the mini-plug when it is plugged into the PCB unless the power to the water heater is switched OFF, otherwise damage to electrical components may occur.

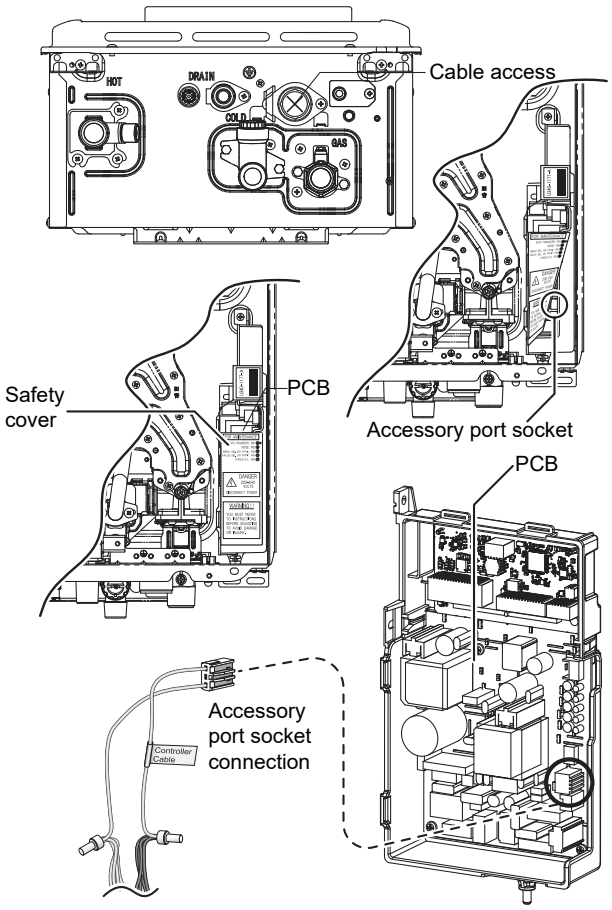
Water controllers are connected to the PCB by a dedicated pre-wired mini-plug.

Standard electrical cable connectors can be used to terminate the water controller wires to those on the mini-plug. The existing spade connectors, of the communication cables, will need to be removed prior to termination. Controllers are not polarity sensitive, however to avoid confusion it is recommended that like coloured wires be terminated together.



Connecting communication cables to the PCB (refer image below)
DO NOT attempt to connect the mini-plug or water controller cables to the water heater unless the power to the water heater is switched OFF, otherwise damage to electrical components may occur.

1. Isolate the power supply by switching the power point off and removing the water heater plug from the power socket.
2. Remove the appliance front cover.
3. Insert the mini-plug and the connected water controller cables through the cable access at the base of the appliance. Ensure the cable connectors are located inside the appliance for protection.
4. Locate the PCB (bottom right of the appliance), and carefully move the plastic safety cover out of the way.
5. Locate the accessory port socket (bottom front of PCB).
6. Plug the mini-plug into the accessory port socket, the plug and socket are keyed so that they can only be plugged in one direction.
7. Proceed with the water controller installation and connect the communication cables to the controllers.



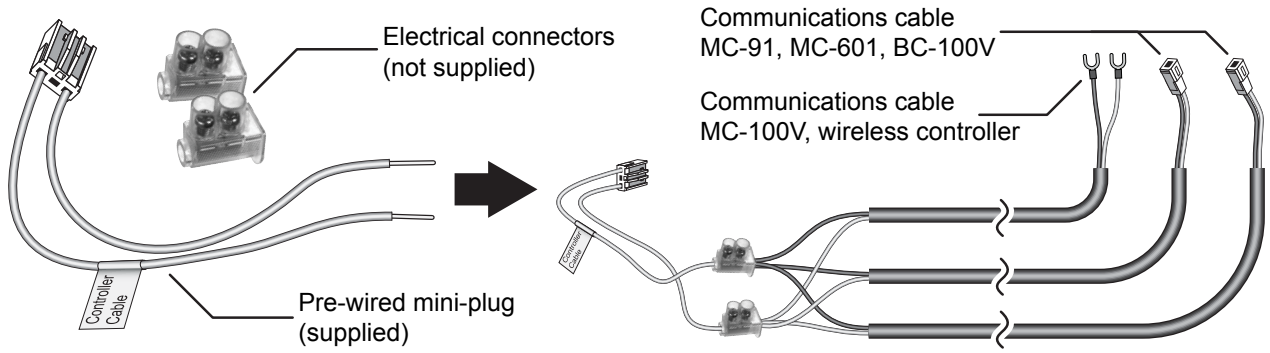
N-Series controller communication cables

Connecting communication cables to the mini-plug

CAUTION DO NOT attempt to connect water controller cables to the mini-plug when it is plugged into the PCB unless the power to the water heater is switched OFF, otherwise damage to electrical components may occur.

Water controllers are connected to the PCB by a dedicated pre-wired mini-plug.

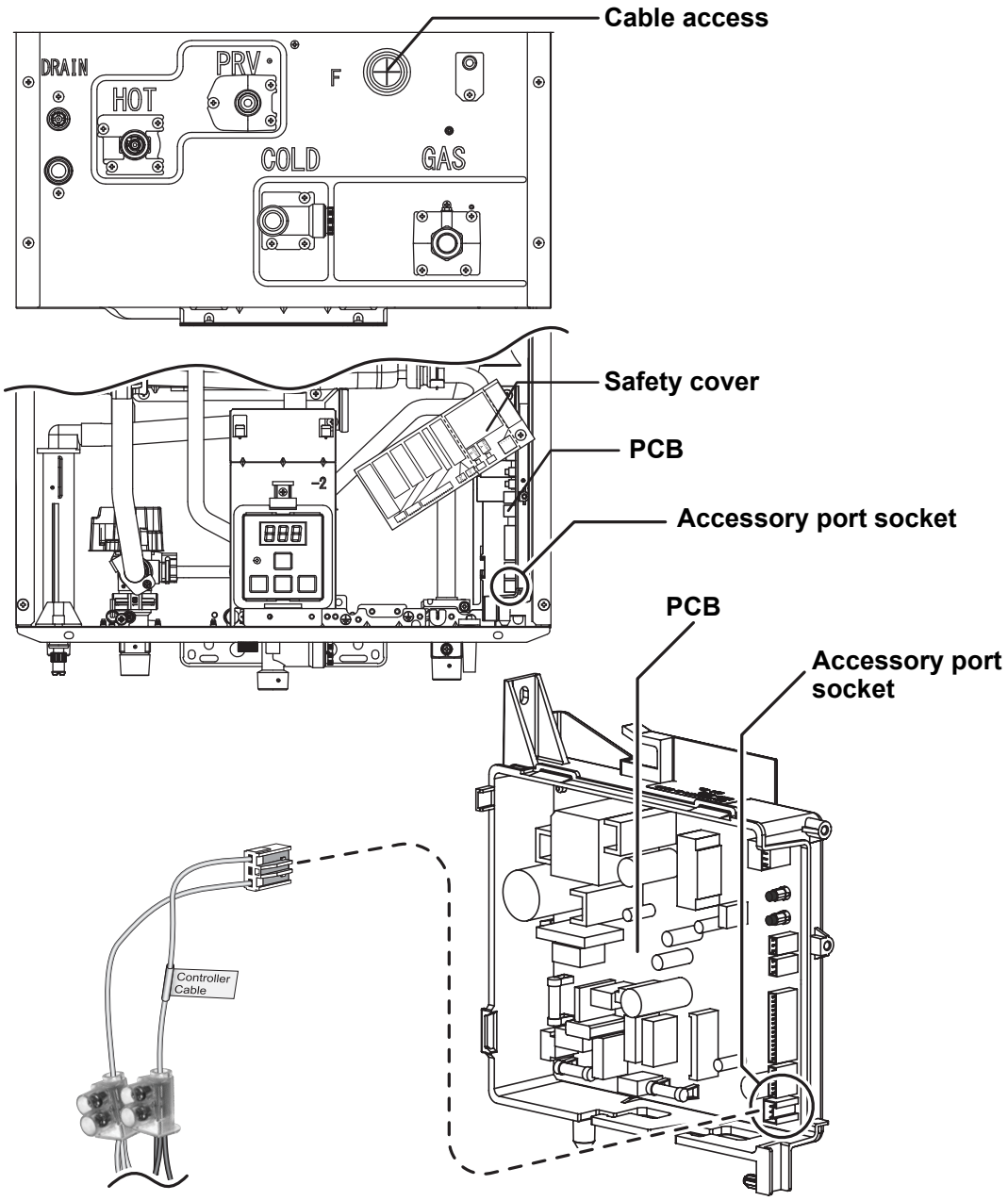
Standard electrical cable connectors can be used to terminate the water controller wires to those on the mini-plug. The existing spade connectors, of the communication cables, will need to be removed prior to termination. Controllers are not polarity sensitive, however to avoid confusion it is recommended that like coloured wires be terminated together.



Connecting communication cables to the PCB (refer image on next page)
DO NOT attempt to connect the mini-plug or water controller cables to the water heater unless the power to the water heater is switched OFF, otherwise damage to electrical components may occur.

1. Isolate the power supply by switching the power point off and removing the water heater plug from the power socket.
2. Remove the appliance front cover.
3. Insert the mini-plug and the connected water controller cables through the cable access at the base of the appliance. Ensure the cable connectors are located inside the appliance for protection.
4. Locate the PCB (bottom right of the appliance), and carefully rotate the plastic safety cover out of the way.
5. Locate the accessory port socket (bottom front of PCB).
6. Plug the mini-plug into the accessory port socket, the plug and socket are keyed so that they can only be plugged into the one direction).
7. Proceed with the water controller installation and connect the communication cables to the controllers.

Connecting communication cables to the PCB



Rinnai.co.nz

Tel: 0800 746 624
http://www.youtube.com/rinnainz
http://facebook.com.rinnainz