

Model Series

ECO30i / GMC195IB & GMC195ID Series

ECO30e / GMC195OA Series

ECO24e / GMC150OA Series

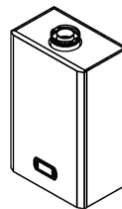
AQUA28i / GMS195ID Series

AQUA28e / GMS195OA Series

P21i / GMS150IB Series

P21e / GMS150OA Series

INDOOR UNIT



ECO30i

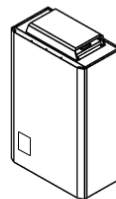


AQUA28i

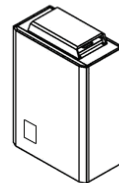


P21i

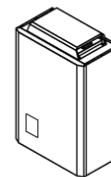
OUTDOOR UNIT



ECO30e
ECO24e



AQUA28e



P21i

This appliance must be installed in accordance with

- ✓ manufacturer's installation instructions
- ✓ Current AS/NZS 5601, AS/NZS 3000, AS/NZS 3500.4 wiring regulations and all Local Building, Water and Gas fitting regulations

This appliance must be installed and serviced by an "authorized person" responsible for:

1. Giving these instructions to the customers.
2. Correct commissioning of this appliance
3. Demonstrating the operation of unit to the customers before leaving
4. Ensuring the unit performs to the specification stated on the rating label

Failure to install this appliance according to these installation instructions may void warranty.

This appliance is not suitable for use as a pool heater



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1. SAFETY / WARNING



Warning: The maximum inlet gas pressure must not exceed the value specified by the manufacturer and that minimum value listed is for the purpose of input adjustment.



Warning: Do not obstruct the flow of combustion and ventilation air.



Warning: Shock hazard; line voltage is present. Before servicing the water heater, unplug power supply cord from outlet. Failure to do so could result in severe personal injury or death.



Warning: Keep appliance area clear and free from combustible materials, gasoline and other flammable vapors and liquids.



Warning: The appliance should be located in an area where leakage of the heater or connections will not result in damage to the appliance or to lower floors of the structure. When such locations cannot be avoided, it is recommended that a suitable drain pan, seems unnecessary, be installed under the appliance. The pan must not restrict combustion air flow.



Warning: Label all wires prior to disconnection when servicing controls. Wiring errors can result in improper and dangerous operation. Verify proper operation after servicing.

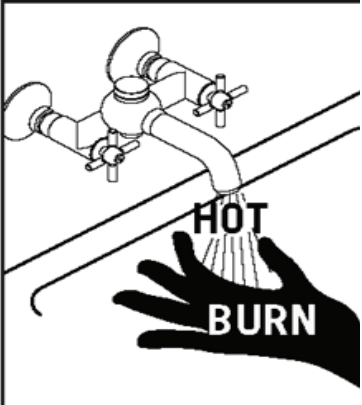


Warning: All the electrical wiring connections and electrical grounding must comply with local code, or in absence of local codes, with the latest edition of the National Electrical Code AS/NZS 3000.



Warning: The heater must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures.

DANGER



Water temperature over 50°C can cause severe burns instantly or death from scalding. Children, the disabled and the elderly are at highest risk of being scalded. See instruction manual before setting temperature of water heater. Feel water before bathing or showering.

2. INTRODUCTION

The **enerMAX** continuous flow gas water heater series are designed and manufactured in accordance with the customers' requirement for energy efficiency, safety, comfort, and convenience.

Features:

- ✓ Condensing and non-condensing models are available
- ✓ Outdoor and co-axial flue indoor models are available
- ✓ Domestic and Commercial models are available
- ✓ Cascade connection available
- ✓ Max. 50°C hot water delivery models (compliant with Water Mark) are available
- ✓ Precision thermostatic control +/-2°C
- ✓ Gas valve + control PCB designed and manufactured in house
- ✓ Digital electronic ignition
- ✓ LCD temperature control pad
- ✓ Error code system
- ✓ Module designed for easy maintenance
- ✓ Oxygen free copper heat exchanger
- ✓ By pass valve
- ✓ Step motor water flow controller

Safety Functions:

- ✓ Anti-frost detection (ECO30i / ECO30e / ECO24e / AQUA 28e / AQUA28i series)
- ✓ Flame out detection
- ✓ Over voltage detection
- ✓ Abnormal water pressure detection
- ✓ Multiple safety temperature detection
- ✓ Over heat detection
- ✓ Power failure detection
- ✓ Block flue detection
- ✓ BLDC blower degradation detection

Before installing this appliance, please carefully check that all packing materials have been removed and that the appliance is correct for the gas supply to which it is to be connected.

3. TECHNICAL DATA

AGA approval certificate number:

--AGA 8167 G: ECO30e, ECO24e, P21e & AQUA28e series

--AGA 8173 G: ECO30i, AQUA28i & P21i series

Max./ Min. nominal gas consumption (Mj/hr) per hour

Model Series	Natural Gas (Mj/hr)	LP Gas (Mj/hr)	ULP Gas(Mj/hr)
ECO30i/GMC195IB	Max.200 / Min.13.5	Max.200 / Min.13.5	--
ECO30i/GMC195ID	Max.200 / Min.13.5	Max.200 / Min.13.5	Max.200 / Min.13.5
ECO30e/GMC195OA	Max.200 / Min.13.5	Max.200 / Min.13.5	--
ECO24e/GMC150OA	Max.160 / Min.13.5	Max.160 / Min.13.5	Max.160 / Min.13.5
AQUA28i/GMS195ID	Max.200 / Min.13.5	Max.200 / Min.13.5	Max.200 / Min.13.5
AQUA28e/GMS195OA	Max.200 / Min.13.5	Max.200 / Min.13.5	Max.200 / Min.13.5
P21e/GMS150OA	Max.160 / Min.13.5	Max.160 / Min.13.5	Max.160 / Min.13.5
P21i/GMS150IB	Max.160 / Min.13.5	Max.160 / Min.13.5	Max.160 / Min.13.5

Test point pressure:

Model Series	Natural Gas Max. TPP	Natural Gas Min.TPP	Propane Max. TPP	Propane Min. TPP	ULP Gas Max. TPP	ULP Gas Min. TPP
ECO30i/GMC195IB	0.80 kPa	0.27 kPa	1.10 kPa	0.30 kPa	--	--
ECO30i/GMC195ID	0.87 kPa	0.27 kPa	1.10 kPa	0.30 kPa	1.05 kPa	0.33 kPa
ECO30e	0.80 kPa	0.30 kPa	0.95 kPa	0.27 kPa	--	--
ECO24e	0.55 kPa	0.30 kPa	0.60 kPa	0.27 kPa	0.61 kPa	0.27 kPa
AQUA28i	0.73 kPa	0.26 kPa	0.80 kPa	0.26 kPa	0.82 kPa	0.26 kPa
AQUA28e	0.71 kPa	0.26 kPa	0.82 kPa	0.26 kPa	0.85 kPa	0.26 kPa
P21e	0.73 kPa	0.23 kPa	1.13 kPa	0.22 kPa	1.11 kPa	0.22 kPa
P21i	0.74 kPa	0.28 kPa	1.05 kPa	0.25 kPa	1.06 kPa	0.25 kPa

Hot water capacity:

Model Series	Water heating capacity raised 25°C (L/min.)	Water heating capacity raised 45°C (L/min.)
ECO30i/GMC195IB	30.4 L / min.	16.8 L / min.
ECO30i/GMC195ID	31.0 L / min.	17.0 L / min.
ECO30e	30.4 L / min.	16.8 L / min.
ECO24e	25.5 L / min.	13.7 L / min.
AQUA28i	28.0 L / min.	15.0 L / min.
AQUS28e	28.0 L / min.	15.0 L / min.
P21e	20.8 L / min.	11.9 L / min.
P21i	21.8 L / min.	12.2 L / min.

Common technical data:

Max. / Min. inlet water pressure	1,000 kPa / 200 kPa
Main injector size (mm)	Natural Gas: 2.0 / Propane & ULP Gas: 1.40
Electrical characteristic	AC 230V-240V 50Hz/60Hz 0.32Amp for ECO30i/ECO30e/ECO24e/AQUA28e/AQUA28i 0.27Amp for P21i/P21e
Anti-frost sensor	< 2°C ON, > 10°C OFF
Inlet gas connection	3/4" BSPT
Cold water connection	3/4" BSPT
Hot water connection	3/4" BSPT
IP rating	IP 23

Wiring diagram and error code table:

Located on the inside of the chassis

Data Plate Label:

Located on the left-hand outside of the chassis


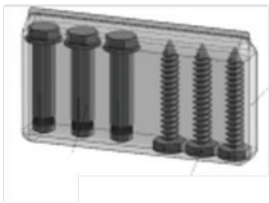

Gas type Label:

The gas type which the appliance is designed to operate is nominated on a label sticker located on the left-hand outside of the chassis.

Warning labels:

Located on the left-hand outside of the chassis--PLEASE READ THESE LABELS CAREFULLY!

4. INSTALLATION**a) Included Accessories**

Part	Image	O'ty
Mounting Bracket		1
Hardware Kit		1
Installation Manual		1



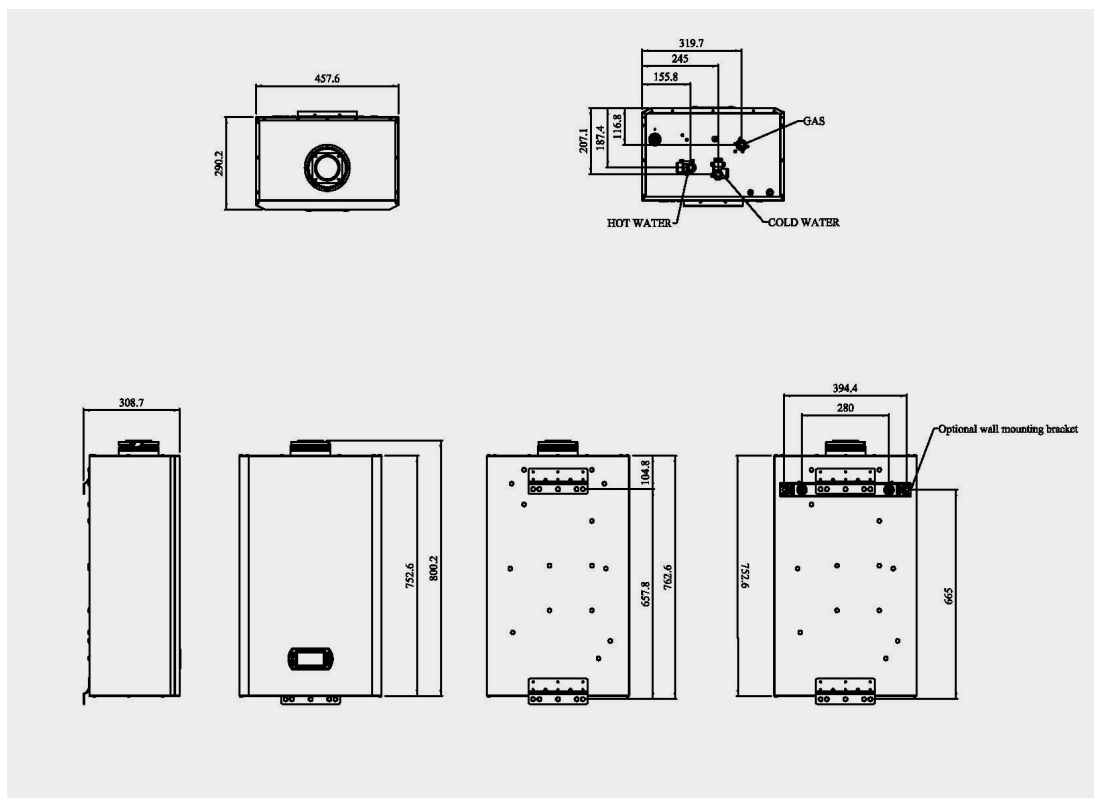
Warning: After installation the installer must test the appliance for correct operation before hand over to the customers.

b) Optional Flue Accessories

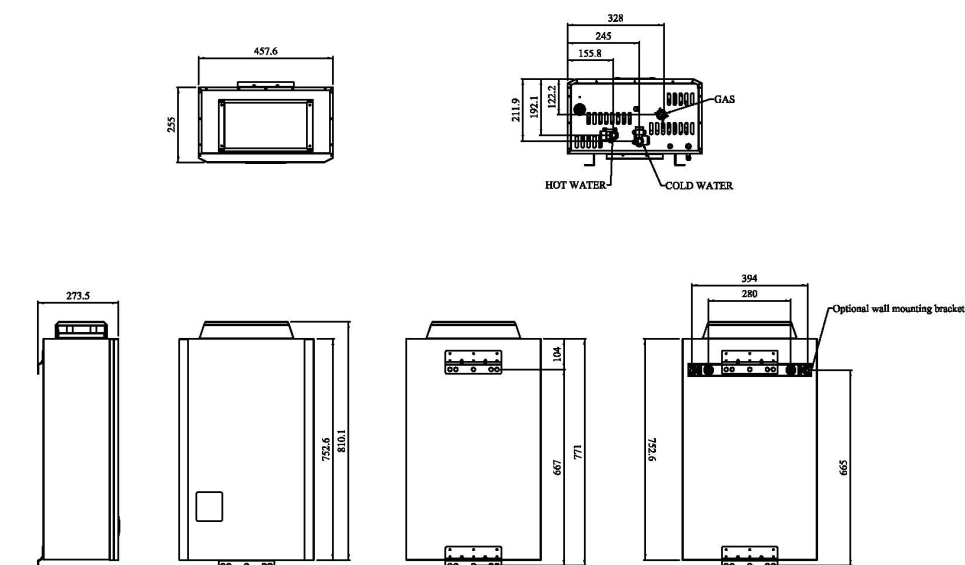
Part No.	Part Description	Image
TIT2-3008102	SUS304 5"/3" coaxial straight flue (300mm length)	
TIT2-6008102	SUS304 5"/3" coaxial straight flue (600mm length)	
TIT2-9008102	SUS304 5"/3" coaxial straight flue (900mm length)	
TIT2-9088104	SUS304 5"/3" coaxial 90° elbow flue	
TIT2-4588104	SUS304 5"/3" coaxial 45° elbow flue	
TIT2-9266104	SUS304 5"/3" coaxial condensing drain water flue	
TIT2-1721297	SUS304 5"/3" coaxial adjustable connection and extension flue	
TIT2-9290104	SUS304 5"/3" coaxial horizontal terminal flue	
TIT2-9218103	SUS304 5"/3" coaxial vertical terminal flue	

c) Dimensions

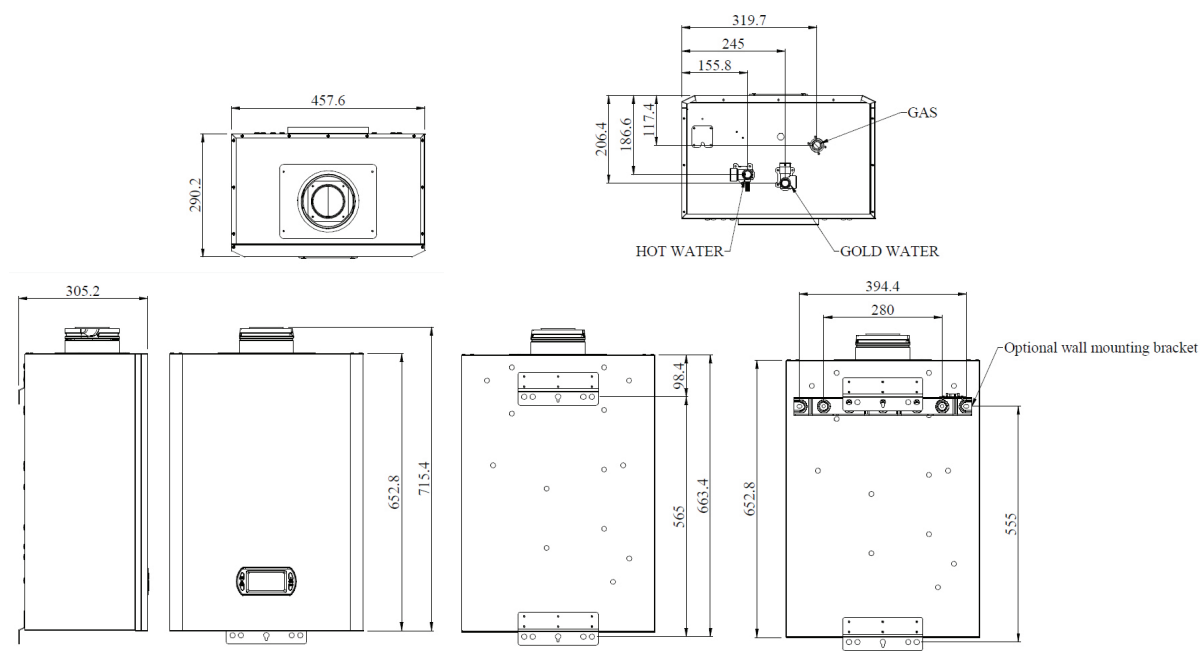
Dimension ECO30i Series



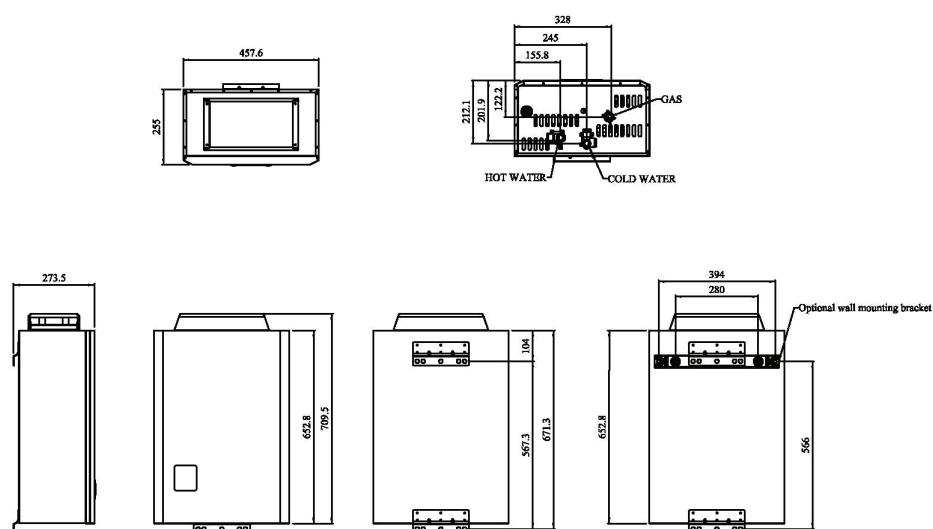
Dimension ECO30e & ECO24e Series



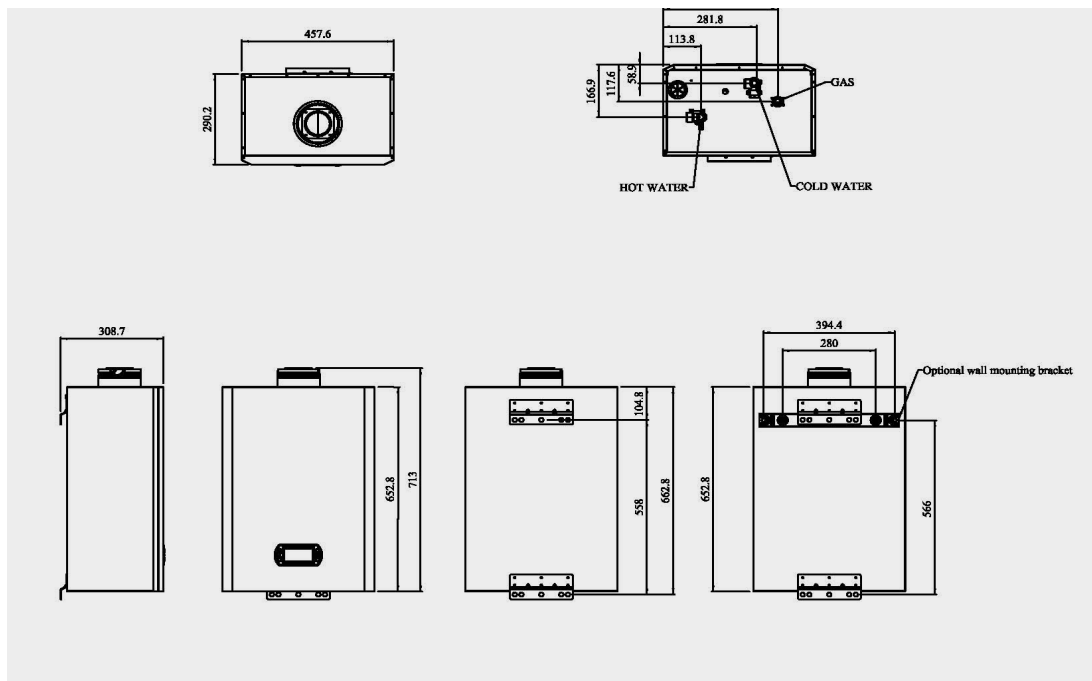
Dimension AQUA28i Series



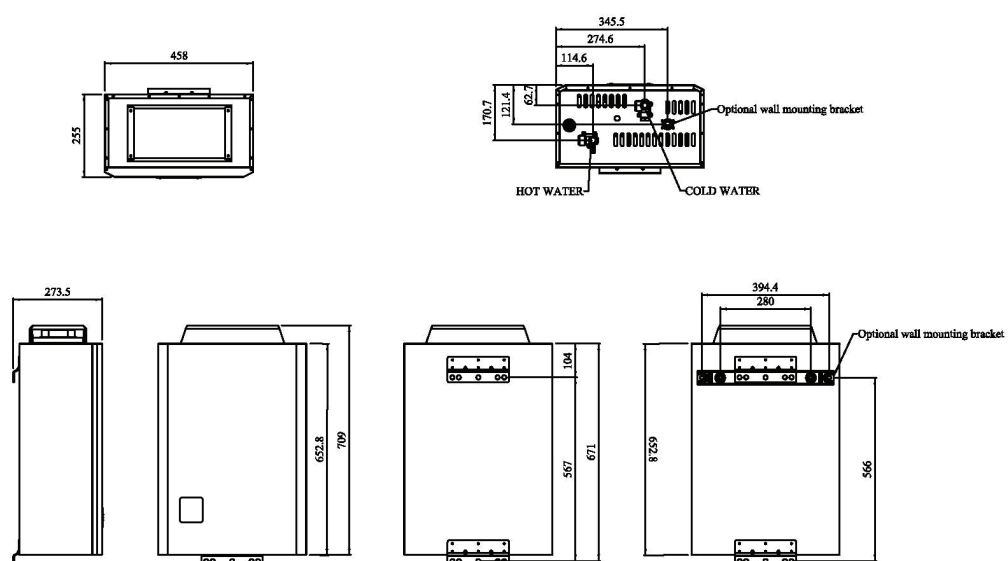
Dimension AQUA28e Series



Dimension P21i Series



Dimension P21e Series

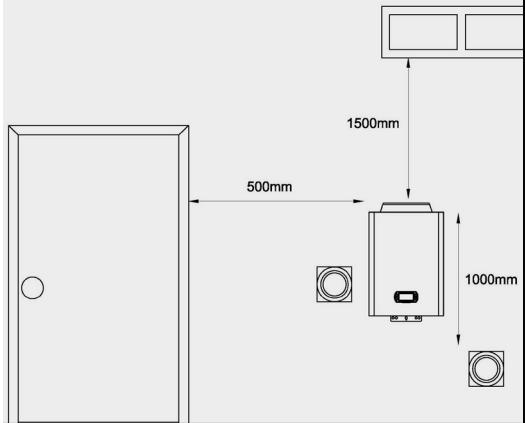


d) Installation Clearances



Warning: The location of the flue terminal must comply with the clearances shown on this page. If you are unsure about clearances not indicated here, in general refer to S5601, or your local authority. In Western Australia refer to the WA Office of Energy rules and regulations.

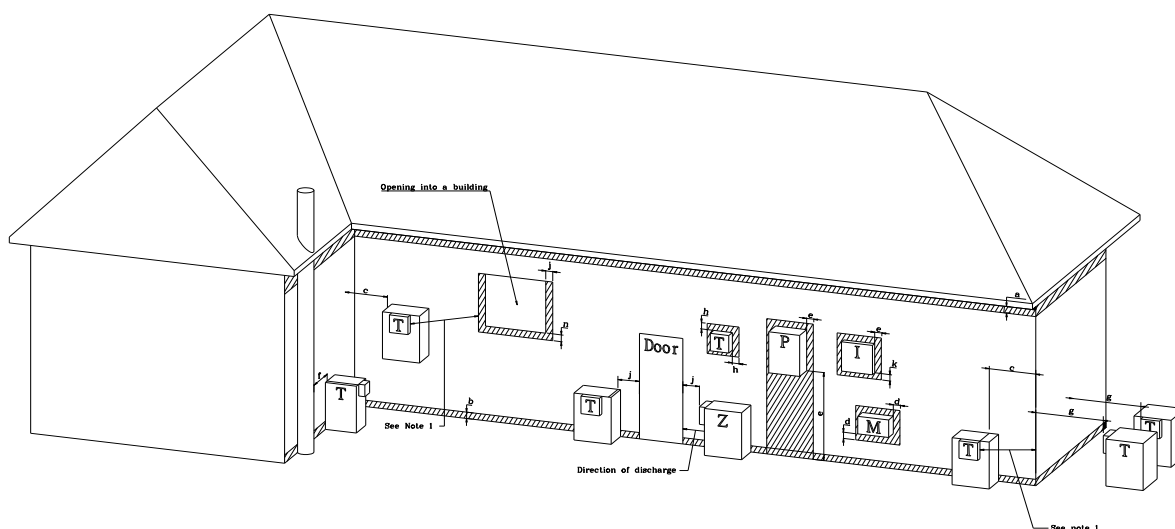
Item	Attention	Illustration
Distance from combustibles	<p>*Maintain the following clearances from both combustible and non-combustible materials</p> <p>*If the unit is to be installed in the vicinity of a permanent kitchen range or stove that has the possibility of generating steam that contains fats or oils, use a dividing plate or other measure to ensure that the unit is not exposed to air containing such impurities.</p> <p>*The dividing plate should be noncombustible and the width must exceed that of the device.</p> <p>*Do not remove mounting brackets to reduce air gap at rear</p> <p>In Accordance with AS5601</p>	
Securing of space for repair / inspection	<p>*If possible, leave 200mm or more on either side of the unit to facilitate inspection.</p> <p>*If possible, leave 600mm or more in front of the unit to facilitate maintenance and service if necessary</p>	

<p>Outdoor clearances to any opening into any building</p>	<p>*Maintain the following clearances to any opening in any building: 1.5m below and 500mm horizontally from any door, window or gravity air inlet. 1m above any forced air inlet. 500mm below an overhang. In accordance with AS5601</p>	
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Clearances for flue terminal (top of heater)

The location of the flue terminal must comply with the clearances shown on this page. If you are unsure about clearances not indicated here, in general refer to S5601, or your local authority. In Western Australia refer to the WA Office of Energy rules and regulations.

Extract from AS/NZS 5601



Use as a guide only. Refer to AS5601 or local gas fitting rules for specific locations

T Flue terminal Z = Fan assisted flue appliance only M Gas meter p= Electricity meter or fuse box I = Mechanical air inlet



Shaded area indicates prohibited areas for flue terminals

Ref	Item	Min. Clearances (mm)
		Fan-Assisted
a	Below eaves, balconies and other projections:	200
	• Appliances up to 50 MJ/h input	300
	• Appliances over 50 MJ/h input	300
b	From the ground, above a balcony or other surface *	300
c	Front a return wall or external corner *	300
d	From a gas meter (M) (see 5.11.5.9 for vent terminal location of regulator) (see Table 6.6 for New Zealand requirements)	1000
e	From an electricity meter or fuse box (P) †	500
f	From a drain pipe or soil pipe	75
g	Horizontally from any building structure* or obstruction facing a flue terminal	500
h	From any other flue terminal , cowl, or combustion air intake †	300
j	Horizontally from an open window, door, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation:	
	• Appliances up to 150 MJ/h input *	300
	• Appliances over 150 MJ/h input up to 200 MJ/h input *	300
	• Appliances over 200 MJ/h input up to 250 MJ/h input *	500
	• Appliances over 250 MJ/h input *	1500
	• All fan-assisted flue appliances , in the direction of discharge	1500
k	From a mechanical air inlet, including a spa blower	1000
n	Vertically below an open window, non-mechanical air inlet, or any other opening into a building with the exception of sub-floor ventilation:	
	• Space heaters up to 50 MJ/hr input	150
	• Other appliances up to 50 MJ/hr input	500
	• Appliances over 50 MJ/h input and up to 150 MJ/h input	1000
	• Appliances over 150 MJ/h input	1500

* - unless appliance is certified for closer installation

† - Prohibited area below electricity meter or fuse box extends to ground level

NOTES:

1. Where dimensions c, j or k cannot be achieved an equivalent horizontal distance measured diagonally from the nearest discharge point of the terminal to the opening may be deemed by the Technical Regulator to comply.
2. See Clause 6.9.4 for restrictions on a flue terminal under a covered area.
3. See Figure J3 for clearances required from a flue terminal to an LP Gas cylinder. A flue terminal is considered to be a source of ignition.
4. For appliances not addressed above acceptance should be obtained from the Technical Regulator.

e) Flue/Pipes Installation—Indoor Unit Only**Flue Guidelines**

- ✓ This is a co-axial flue water heater and therefore is certified and listed with the flue system. You must use flue components that are certified and listed with the water heater model. **Do not combine vent components from different manufacturers.**
- ✓ The flue system must vent directly to the outside of the building and use outside air for combustion.
- ✓ Flue should be as direct as possible with a minimum number of pipe fittings.
- ✓ Flue connections must be firmly pressed together so that the gaskets form an air tight seal.
- ✓ If the flue system is to be enclosed, it is suggested that the design of the enclosure shall be deemed acceptable by the installer or the local inspector.
- ✓ Regions of cold climate will create more condensation in the flue system. The condensation collector should be used in cold climates.
- ✓ Do not common vent or connect more than one appliance to this flue system.
- ✓ Do not place any dangerous objects at the end of the exhaust flue.
- ✓ When installing the coaxial flue, ensure appropriate supports are installed. Each flue must be securely connected. The gap above each support must be less than 30mm.

NOTICE: Provisions must be made to prevent the condensate from entering the water heater. Without proper drainage or disposal, condensate will damage the heat exchanger.

Coaxial flue pipe and terminal flue connection instruction

- ✓ The coaxial flue pipe T1T2 series must be inserted and then rotated in clock-wise direction to correctly assemble.
- ✓ The horizontal or vertical terminal has the same connections as the coaxial flue pipe T1T2 series and requires inserting and rotation to correctly assemble the terminal to the coaxial pipe.

For horizontal flue only

a. Minimum horizontal flue length

- ✓ From the center of the pipe on the unit to the outside wall, the minimum vent length is 1 meter. You will need at least one elbow in this type of installation.

b. Maximum horizontal flue length (with 1st elbow connected at the unit.)

- ✓ Determine the number of 90° elbows in the flue system.
- ✓ One 90° elbow will reduce the effective horizontal flue length by 1 meter.
- ✓ **The max. flue length of the appliance is 10 meters**
- ✓ To find the maximum horizontal flue length based on the number of elbows, see table below. Total flue length is calculated from the center of the pipe at the unit with all the effective length added to the outside wall.

Total horizontal/vertical flue pipe length with the Number of 90° elbows		
1 elbow	2 elbows	3 elbows
9 meters	8 meters	7 meters

For vertical flue only

a. Minimum flue length

- ✓ From the top of the unit to the top of the vertical terminations, the minimum flue length is 3 meters.

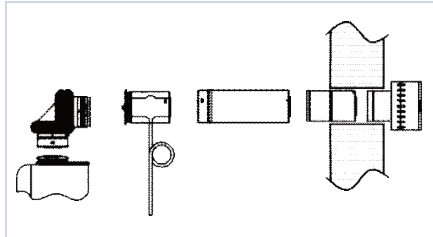
b. Maximum vent length

- ✓ Determine the number of 45° and 90° elbows in the flue system.
- ✓ One 45° or 90° elbow will reduce the effective horizontal flue length by 1 meter.
- ✓ The max. flue length of the appliance is 10 meters
- ✓ To find the maximum vertical flue length based on the number of elbows, see table below. Total flue length is calculated from the top of the unit to the top of the vertical termination.

Total vertical/horizontal flue length with the Number of 90° elbows		
1 elbow	2 elbows	3 elbows
9 meters	8 meters	7 meters

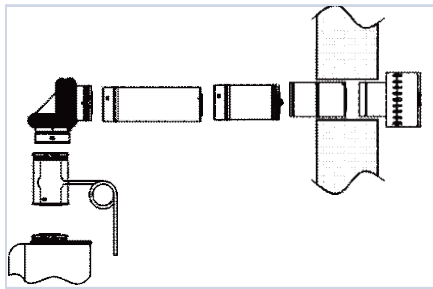
Horizontal termination using the condensate trap

- ✓ The condensate trap must be used in horizontal terminations if a horizontal length in the flue system exceeds 4.8 meters.
- ✓ Regions of cold climate will create more condensation in the flue system. The condensate trap should be used in cold climates.
- ✓ If more than one elbow is used in the vertical section the condensate trap must be used.



Recommended condensate trap location

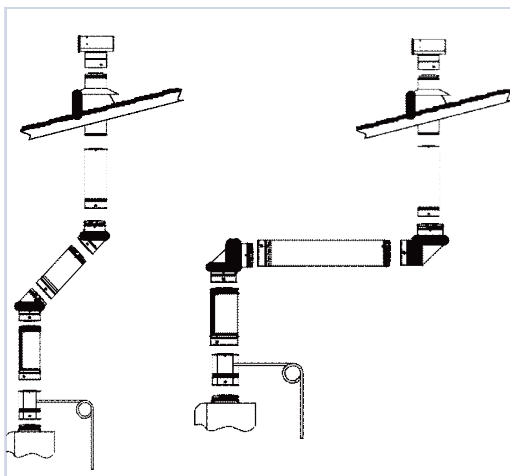
The condensate trap must be used in horizontal terminations if a vertical rise in the flue system exceeds 1.5 meters.



Recommended condensate trap location

Vertical termination

The condensate trap must be used in vertical terminations if a vertical rise in the flue system exceeds 1.5 meters.



Recommended condensate trap location

f) Wall Mounting Installation



Caution: During installation use correct PPE to avoid injury.



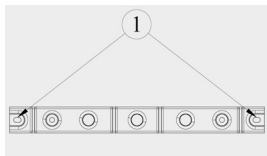
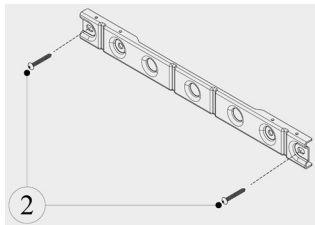
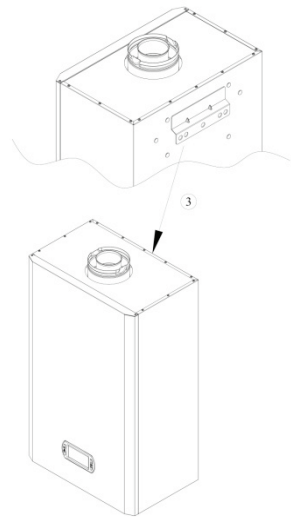
Warning: Check for gas, water, or electrical services prior to drilling any mounting holes.

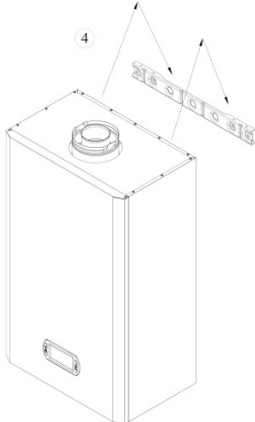


Caution: Installation must conform with all local building, water or Gas Regulations or AS5601.



Caution: To prevent the internal parts of the unit from any damage or malfunction, please do not apply any unnecessary force to the unit while installing.

Action	Attention	Illustration
Position mounting bracket	<ol style="list-style-type: none"> 1. Open the mounting kit bag and take out the mounting bracket assembled with the bubble level. Place the mounting bracket on the appropriate height of the vertical wall. Make sure the bubble level is in level position and then mark the drilling hole positions in both sides of the mounting bracket. 2. Drill the holes on the marked position. <ol style="list-style-type: none"> a. Then place the expansion bolts in the holes if it is brick or stone wall. b. Or, then screw-in wood screws in the holes if it is wooden wall 	 
Mounting	<ol style="list-style-type: none"> 3a. Hang the unit by placing the upper fixed bracket in the groove of the mounting bracket on the wall. 3b. Mark the drilling hole position in the middle hole of the lower fixed bracket and then remove the unit. 	

Mounting	<p>4. Drill the holes on the marked position.</p> <p>a. Use the expansion bolts provided to fix the mounting bracket and the unit to a masonry wall.</p> <p>b. Or screw the mounting bracket and unit to a timber support wall, ensure the fixing point can support the unit.</p> <p>Hang the unit again on the wall.</p>	
Recheck	<p>Ensure the unit is installed securely and won't move or fall down by the vibrations or earthquakes.</p>	

g) Gas Piping

Before connecting the gas supply, check the rating plate on the side of the heater to be sure that the heater is rated for the same gas to which it will be connected.



Warning: The heater must be isolated from the gas supply during pressure testing of that system with at least pressure equal to or more than 3.5 kPa. If overpressure has occurred, such as through improper testing of the gas lines or malfunction of the supply system, the gas valve must be checked for safe operation.



Danger: If you have a leak, shut off the gas. Tighten appropriate fittings to stop leak. Turn gas on and check again with a gas leak detection solution. Never test for gas leaks using a match or flame.

Gas Pressure:

Select the gas line size based on the total building demand (Mj/hr) and the distance to the regulator or meter (Refer AS5601). Undersizing the gas line may result in diminished hot water flow rate and temperature. Proper gas pressure must be confirmed at time of installation.

Gas Meter:

Select a gas meter suitable to supply the total Mj/hr of all gas appliances in the building.

Gas connections

1. Fit a union to the water heater gas inlet for easy connection and removal. The thread diameter is 20mm (3/4" BSP).
THIS DOES NOT INDICATE THE SIZE OF THE GAS SUPPLY
2. Fit an AGA/NZGA approved isolating gas cock in the supply line adjacent to the water heater gas connection.
3. Ensure that the gas supply pipe and the gas pressure regulator (Propane, Natural Gas or ULP Gas) has sufficient flow capacity for the gas burner and other appliances connected to the fitting line.
4. For Propane or ULP Gas appliances ensure that gas cylinders are of sufficient size and capacity.
5. Before connecting the appliance to the gas service, purge any debris or air from the gas service.
6. Check all joints for leaks with an approved leak tester after connection.

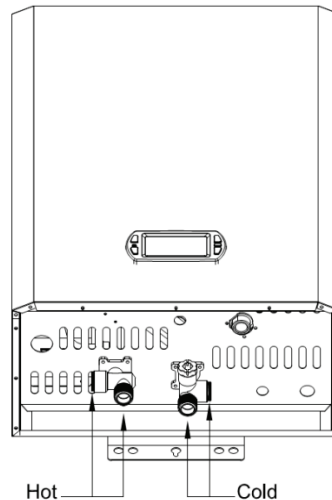
Measuring gas pressure

Refer to AS5601 Installation Code or NZS 5261:2003 Installation Code for pipe sizing and details.

Gas outlet pressure adjustments may only be carried out by authorized and certified installers. For the adjustment details, please refer to the “Gas Outlet Pressure Adjustment Instruction” in the page 45 of the Service Instruction Booklet.

**SERVICE CALLS ARE CHARGEABLE FOR UNITS WITH INCORRECT PIPE SIZES FOR
BLOCKED GAS OR WATER FILTER.**

h) Water Connection



Warning: If the cold and hot connections to the heater are reversed, the heater will not function. Be certain there are no loose particles or dirt in the piping. Blow out or flush the lines before connecting to the water heater.



Warning: Unions to be used as a point of disconnection to both water pipes to the inlet and outlet of the water heater. This will facilitate any necessary servicing.



Warning: Do not use lead, PVC, iron or any piping which has been treated with chromates, boiler seal or other chemicals.



Warning: No pressure reduction valve is required unless the water pressure exceeds 1,000 kPa



Warning: Do not fit any valves, restrictors or obstructions to the outlet of the water heater, or to the pressure relief located on the hot water outlet connection.

- ✓ When water is required in one part of the system at a higher temperature than in the rest of the system, means such as a mixing valve shall be installed to temper the water to reduce the scald hazard.
- ✓ Flush water through the pipe to clean out metal powder, sand and dirt before connecting it.
- ✓ Minimise the number of joints in the pipework where possible.
- ✓ Failure to supply the proper pressure to the unit may result in noisy operation, shorter life time of the unit, and may cause the unit to shut down frequently.

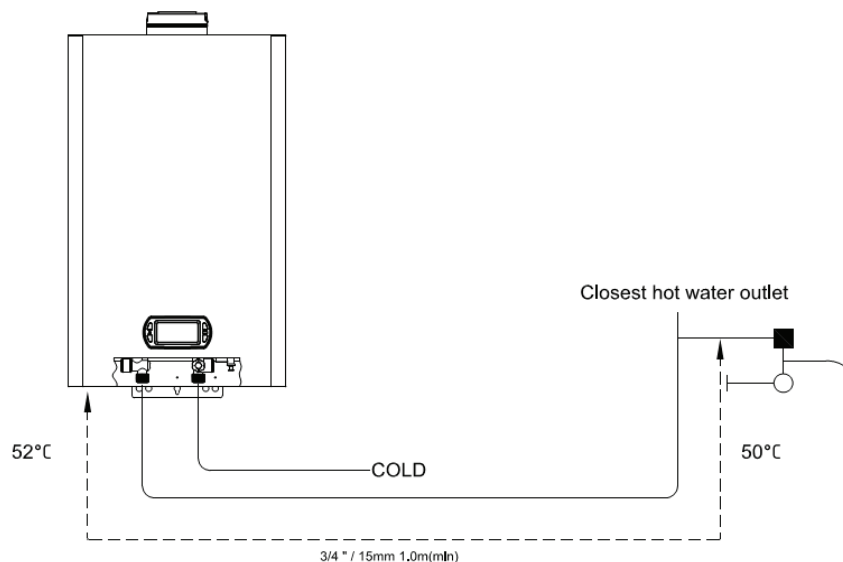
- ✓ After purging the air from the system and using the hot water supply taps, remove the water inlet strainer located on the cold water supply inlet connection. Remove any debris and dirt from the filter and replace. **While replacing the filter, do not over-tighten the “O” ring seal.**

Cold water connection to water heater

- ✓ A gate valve or ball valve must be used on the cold water inlet to the water heater. This requirement is an Australia wide requirement under the national plumbing code.
- ✓ The WATER INLET connection is 20mm (3/4" BSPT) MALE thread and requires a union to allow for removal of the water heater. Pipe sizing from the cold water supply should be sized according to local BY LAWS for water supply.
- ✓ **When the appliance is used as a solar booster, please ensure it does not receive inlet water greater than 80°C.**

Hot water connection to water heater

- ✓ The hot water outlet connection is 20mm (3/4" BSPT) MALE thread, and requires a union to allow for removal of the unit.
- ✓ Keep the pipe lengths to a minimum, and make sure that the pipe work is well insulated as correct performance of the appliance is dependent on properly insulated pipe work.
- ✓ To comply with AS3498 the minimum distances as per the illustration below must be observed. **These requirements are only for the 50°C locked units.**



Water quality

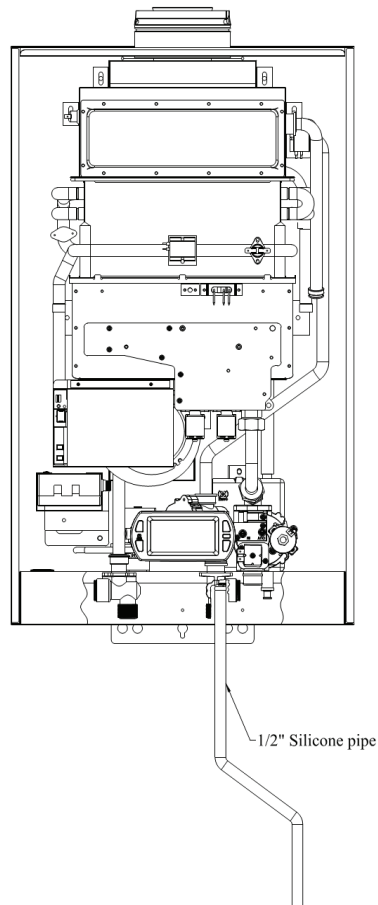
- ✓ Water quality can have an impact on appliance longevity and may not be covered under the manufacturer's warranty.

- ✓ For water analysis data call your local water department or well to tank, on a well to in a tank, department to Authority, have well water analyzed periodically. If water quality exceeds one or more of the values specified below, we recommend consulting a local water treatment professional for water softening/conditioning options.

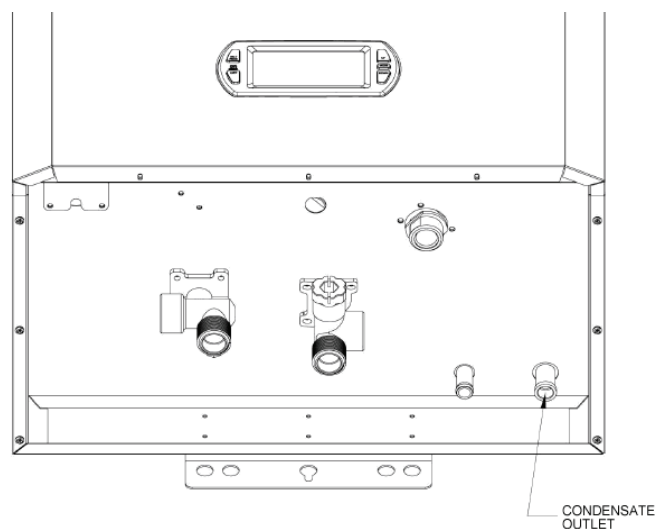
Description	Max. Levels	
pH	mg/i or ppm	6.5 – 8.5
TDS (Total Dissolved Solids)	mg/i or ppm	500
Total hardness	mg/i or ppm	100 (6 grains)
Aluminum	mg/i or ppm	2.0
Chlorides	mg/i or ppm	250
Copper	mg/i or ppm	1.0
Iron	mg/i or ppm	0.3
Manganese	mg/i or ppm	0.05
Zinc	mg/i or ppm	5.0

- ✓ All components and materials of the enerMAX instantaneous water heating units are high-quality constructed and all are certified for compliance with relevant parts of Australian and New Zealand gas, electrical and water standards.
- ✓ While enerMAX water heaters are warranted against defects, the warranty is conditional upon correct installation and use, in accordance with detailed instructions provided with the heater. In the case of the water supplied to the heater, it is important that the water quality be of acceptable standard.
- ✓ In areas of Australia and New Zealand where water may be supplied, either fully or partly, from bores artesian wells or similar, one or more of the important limits may well be exceeded and the heater could, therefore, be at risk of failure.
- ✓ Where uncertainty exists concerning water quality, intending appliance users should seek a water analysis from the water supplying authority and in cases where it is established that the water supply does not meet the quality requirements of the water quality table above, the enerMAX warranty would not apply.

i) Condensate Piping



- ✓ Any 1/2" polyvinyl or silicone tubing must be connected to the condensate outlet. The end of this tube must be properly disposed to a sewer connection.
- ✓ If the tube is blocked, the water heater will shutdown. When this occurs, the tube must be removed to allow water to drain out before the water heater can be turned on again.
- ✓ You will need a bucket to collect any residual water. See figure below.



j) Electrical Connection

The appliance is equipped with an Australian standard 1.7 meter cable with a three pinned earthed weatherproof plug to be connected to a 230-240V, 50/60Hz supply. The electrical rating of the appliance is **0.27 Amps** for P21i/P21e series and **0.32Amps** for ECO30i/ECO30e/ECO24e/AQUA28i/AQUA28e series.



Warning: For safety reasons, disconnect the power supply cord to the heater before any service or testing is performed.



Warning: Electrostatic discharge can affect electronic components. Take precautions to prevent electrostatic discharges from personnel or hand tools during the water installation and servicing to protect appliance's electronic control.



Warning: Please always plug power lead into an earthed point to prevent electrical shock.



Warning: To prevent electrical shock hazard, please do not turn power on until electrical wiring is well connected. Failure to do so, may result in death or serious injury from electrical shock.

- ✓ **The appliance should always be disconnected from the power supply before any maintenance is carried out.** If the power cord is damaged and requires replacement, use only an original spare part available from the manufacturer.
- ✓ The appliance requires a 240V in Australia and 230V in New Zealand, 50Hz general purpose outlet installed in a protected position adjacent to the appliance.
- ✓ Do not let the power cord contact the gas piping.

k) Check Points after Installation

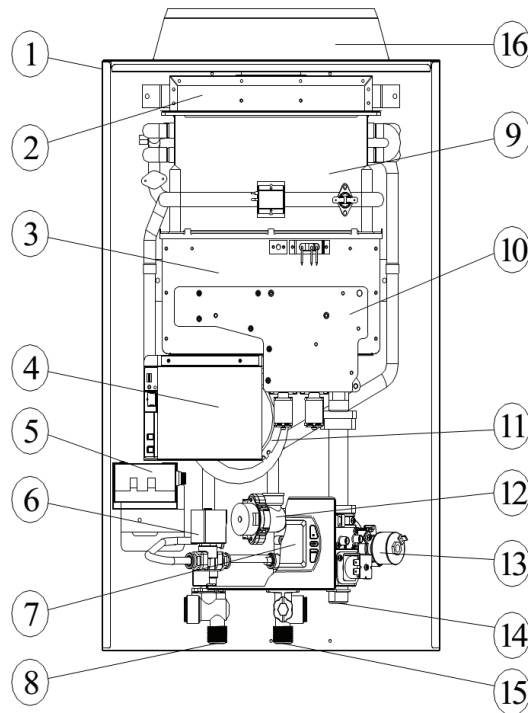
	Installation environmental safety inspection points
1	Make sure the exhaust outlet and air inlet are free of blockages.
2	For indoor unit only—make sure the vents are installed correctly and tightly.
3	Make sure the appliance area is clear and free from combustible materials, gasoline and other flammable vapors and liquids.

	Electricity safety inspection points
1	Make sure power cord is plugged in securely.
2	Make sure the red indicator on the temperature controller is on.
3	Press the “ON” button on the temperature controller and make sure the purging process works.

	Thermostatic temperature function inspection points
1	Press “UP” & “DOWN” buttons 3 seconds to remove “Child Key” icon.
2	Press “UP” or “DOWN” buttons to set up preferred temperature.
3	Turn on the hot water faucet to max. water flow and make sure the “water drop” icon appears on the LCD panel if fitted.
4	While Starting the ignition process, make sure the “ignition” icon appears on the LCD panel.
5	Make sure the hot water achieves setup temperature.
6	Turn on the hot water faucet to medium water flow $\geq 10\text{LPM}$, and make sure the hot water achieves setup temperature.
7	Turn on the hot water faucet to reduce water flow $\geq 6\text{LPM}$, and make sure the hot water achieves setup temperature.
8	Turn on the hot water faucet to max. water flow rate, and make sure the hot water achieves setup temperature.
9	Turn off hot water faucet and make sure there is no hot water outflow.

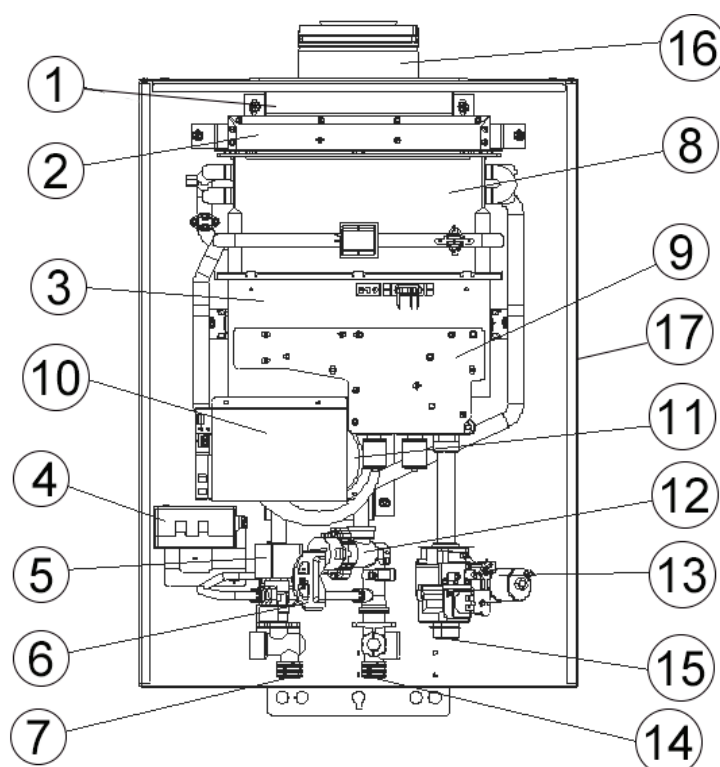
I) Component Details

AQUA28e Series



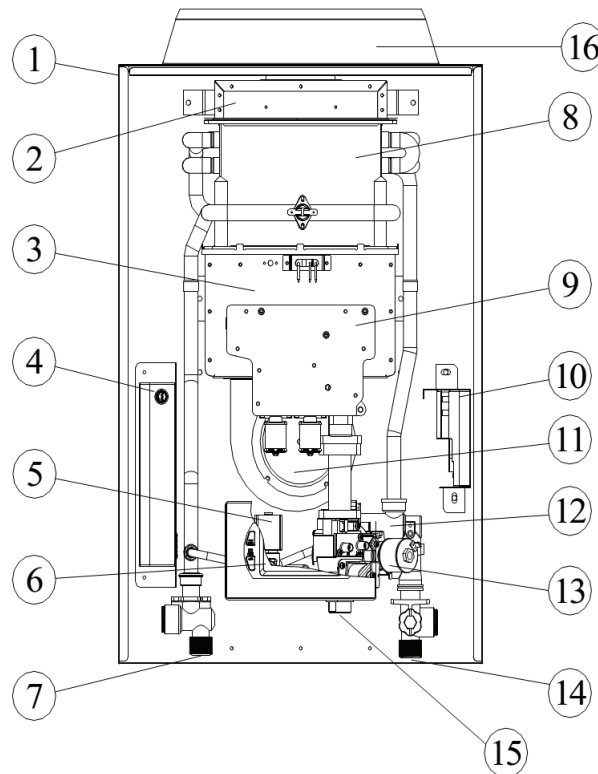
Item No.	Description, location,	Dimensions (mm) H x W x D
1	Outer case	653 x 458 x 255
2	Exhaust Flue	299 x 171 x 38
3	Combustion channel	132 x 302 x 199
4	Control board	98 x 158 x 38.5
5	Switching power	84 x 187 x 44.5
6	Mix water solenoid valve	66.5 x 72.5 x 32
7	LCD Display panel	65.5 x 140 x 17.5
8	Hot water Outlet connector	3/4" BSPT
9	Heat exchanger	208 x 350 x 135
10	Manifold	156 x 263 x 37
11	DC Brushless Blower	136 x 157 x 57
12	Water flow controller + sensor	119 x 67.5 x 109
13	Gas valve	115 x 85.6 x 106
14	Gas valve Inlet connector	3/4" BSPT
15	Cold water Inlet connector	3/4" BSPT
16	Outdoor Flue Terminal	320 x 175 x 55

AQUA28i Series



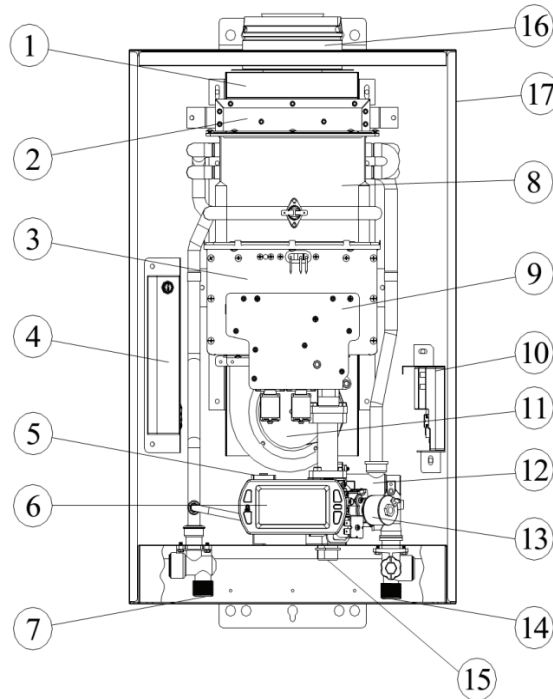
Item No.	Description	Dimensions (mm) H x W x D
1	Air box	451 x 197 x 250
2	Exhaust Flue	299 x 196 x 38
3	Combustion channel	132 x 302 x 199
4	Switching power	84 x 187 x 44.5
5	Mix water solenoid valve	66.5 x 72.5 x 32
6	LCD Display panel	65.5 x 140 x 17.5
7	Hot water Outlet connector	3/4" BSPT
8	Heat exchanger	208 x 350 x 135
9	Manifold	156 x 263 x 37
10	Control board	98 x 158 x 38.5
11	DC Brushless Blower	133.6x 152.2x 98.4
12	Water flow controller + sensor	119 x 67.5 x 109
13	Gas valve	115 x 85.6 x 106
14	Cold water Inlet connector	3/4" BSPT
15	Gas valve Inlet connector	3/4" BSPT
16	Flue pipe and Air pipe bracket	Flue pipe Ø3" (Ø76mm) Air pipe Ø5" (Ø127mm)
17	Outer case	653 x 458 x 290

P21e Series



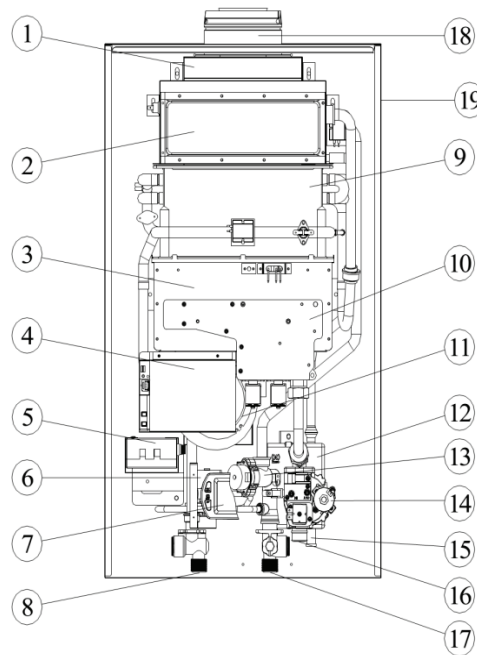
Item No.	Description	Dimensions (mm) H x W x D
1	Outer case	653 x 458 x 255
2	Exhaust Flue	224 x 171 x 38
3	Combustion channel	132 x 220 x 199
4	Switching power	84 x 187 x 44.5
5	Mix water solenoid valve	66.5 x 72.5 x 32
6	LCD Display panel	65.5 x 140 x 17.5
7	Hot water Outlet connector	3/4" BSPT
8	Heat exchanger	208 x 350 x 135
9	Manifold	156 x 172 x 37
10	Control board	98 x 158 x 38.5
11	DC Brushless Blower	136 x 157 x 57
12	Water flow controller + sensor	119 x 67.5 x 109
13	Gas valve	115 x 85.6 x 106
14	Cold water Inlet connector	3/4" BSPT
15	Gas valve Inlet connector	3/4" BSPT
16	Outdoor Flue Terminal	320 x 175 x 55

P21i Series

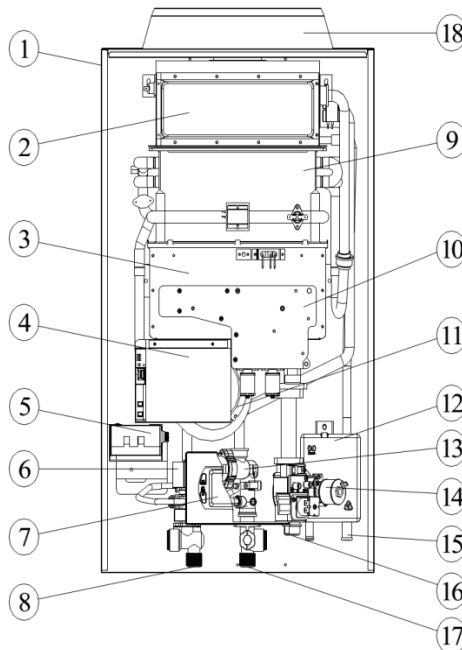


Item No.	Description	Dimensions (mm) H x W x D
1	Air box	451 x 172 x 250
2	Exhaust Flue	224 x 171 x 38
3	Combustion channel	132 x 220 x 199
4	Switching power	84 x 187 x 44.5
5	Mix water solenoid valve	66.5 x 72.5 x 32
6	LCD Display panel	65.5 x 140 x 17.5
7	Hot water Outlet connector	3/4" BSPT
8	Heat exchanger	208 x 350 x 135
9	Manifold	156 x 172 x 37
10	Control board	98 x 158 x 38.5
11	DC Brushless Blower	136 x 157 x 57
12	Water flow controller+ sensor	119 x 67.5 x 109
13	Gas valve	115 x 85.6 x 106
14	Cold water Inlet connector	3/4" BSPT
15	Gas valve Inlet connector	3/4" BSPT
16	Flue pipe and Air pipe bracket	Flue pipe Ø3" (Ø76mm) Air pipe Ø5" (Ø127mm)
17	Outer case	653 x 458 x 290

ECO30i Series



Item No.	Description, location,	Dimensions (mm) H x W x D
1	Air box	545 x 197 x 250
2	Second heat exchanger	117 x 299 x 196
3	Combustion channel	132 x 302 x 199
4	Control board	98 x 158 x 38.5
5	Switching power	84 x 187 x 44.5
6	Mix water solenoid valve	66.5 x 72.5 x 32
7	LCD Display panel	65.5 x 140 x 17.5
8	Hot water Outlet connector	3/4" BSPT
9	Heat exchanger	208 x 350 x 135
10	Manifold	156 x 263 x 37
11	GMC195IB DC Brushless Blower	136 x 157 x 57
	GMC195ID DC Brushless Blower	133.6x 152.2x 98.4
12	Condensing Catchment box	166 x 100 x 46.5
13	Water flow controller+ sensor	119 x 67.5 x 109
14	Gas valve	115 x 85.6 x 106
15	Condensing Catchment box Outlet connector	Ø1/2" (Ø12.7mm)
16	Gas valve Inlet connector	3/4" BSPT
17	Cold water Inlet connector	3/4" BSPT
18	Flue pipe and Air pipe bracket	Flue pipe Ø3" (Ø76mm) Air pipe Ø5" (Ø127mm)
19	Outer case	753 x 458 x 290

ECO30e Series


Item No.	Description, location,	Dimensions (mm) H x W x D
1	Outer case	753 x 458 x 255
2	Second heat exchanger	117 x 299 x 196
3	Combustion channel	132 x 302 x 199
4	Control board	98 x 158 x 38.5
5	Switching power	84 x 187 x 44.5
6	Mix water solenoid valve	66.5 x 72.5 x 32
7	LCD Display panel	65.5 x 140 x 17.5
8	Hot water Outlet connector	3/4" BSPT
9	Heat exchanger	208 x 350 x 135
10	Manifold	156 x 263 x 37
11	DC Brushless Blower	136 x 157 x 57
12	Condensing Catchment box	166 x 100 x 46.5
13	Water flower controller+ sensor	119 x 67.5 x 109
14	Gas valve	115 x 85.6 x 106
15	Condensing Catchment box Outlet connector	Ø1/2" (Ø12.7mm)
16	Gas valve Inlet connector	3/4" BSPT
17	Cold water Inlet connector	3/4" BSPT
18	Outdoor Flue Terminal	320 x 175 x 55

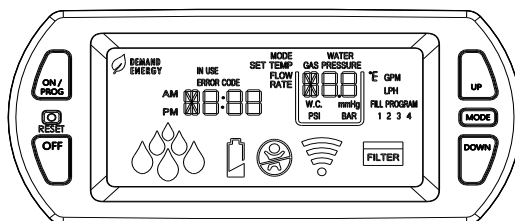
5. SETTING UP AND OPERATION OF TEMPERATURE CONTROL PANEL

Indoor Installation Models (ECO30i, AQUA28i, P21i)

a) Initial Power Up or Press Reset

1. All LCD icons will be brightened and flickered for 3 seconds (flickered once per second), and then it will turn into "shutdown mode" (shown Time AM12:00)

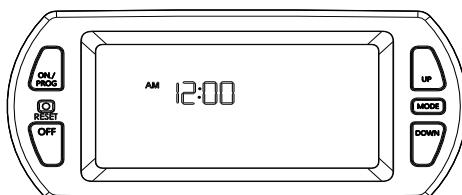
All icons will be brightened and flickered	Flickered 3 seconds (once per second)	Turn into time shutdown mode
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b) Set-up Time and Temperature Unit

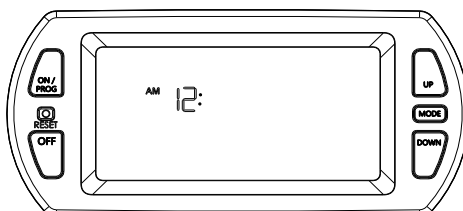
1. Press "Reset button" in 3 seconds
2. Press the "DOWN" button to change to PM. Press the "UP" button and it will be changed back to AM.
3. If there is no signal input within 10 seconds, the system will turn into the default setup (12:00 AM).

Press "DOWN" button to PM ; press "UP" button to AM	If there is no signal input within 10 seconds	The system will turn into the default setup (AM 12:00)
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4. Press Mode to set up "Hour"
5. Use the "Down" or "Up" button to adjust the setup.

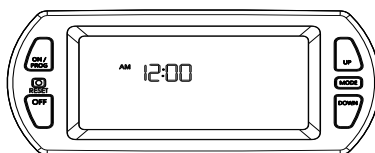
Press " Mode" button to set-up Hour (12:)	Press the "Down" or "Up" button to adjust the setup	When you have finished the setup, press "Mode" button to "minute"
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6. Press "MODE" button to set-up "Minute"

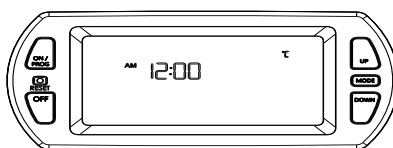
7. Press the “**DOWN**” or “**UP**” button to adjust the setup.

Press ” MODE ” button to set-up Minute (12:00)	Press the “ DOWN ” or “ UP ” button to adjust the setup	When you have finished the setup press the " MODE " button to "temperature unit"
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8. Press “**MODE**” button to set-up preferred “temperature unit”
9. Press the “**DOWN**” or “**UP**” button to switch the temperature unit °C or °F. If °F is selected, the corresponding flow rate unit is **GPM**, and gas pressure unit is **W.C.** If °C is selected, the corresponding flow rate unit is **L** , and gas pressure unit is **mm Hg**.
10. Press “**MODE**” button to finish all setup

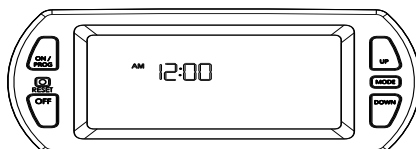
Press “ MODE ” button to set up preferred temperature unit	Press the “ DOWN ” or “ UP ” button to select °C or °F	Press ” MODE ” button to finish all setup
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c) Operate the Water Heater

1. The factory default mode is in “**OFF**” status after finishing the initial set-up. This means the cold water can pass through the gas water heater but won’t activate the ignition device of the water heater.

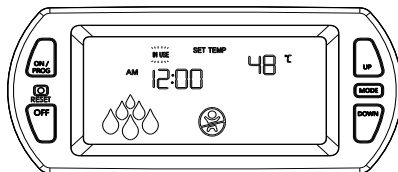
The factory default mode is in “ OFF ” status	The cold water can pass through the gas water heater but won’t activate the ignition device.	After the installation, Plug in and press “ ON ” button. The step motor will turn back to the original position.
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2. Press the “**ON/PROG**” button to turn on the gas water heater.
3. The factory default water temperature is **48 °C** (118 °F)
4. When the ” **IN USE**” icon Flickers, the user can set up the temperature.

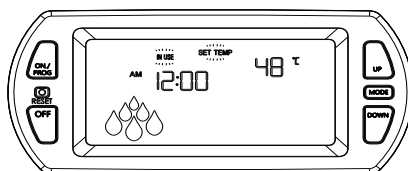
Press “ ON/PROG ” button	The factory default water	When the ” IN USE ” icon
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to turn on the gas water heater	temperature is 48 °C (118 °F)	Flickers, the user can set up the temperature.
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5. To change the default temperature, press and hold the **“DOWN”** and **“UP”** buttons for 3 seconds, then the Child-Lock icon will be unlocked and removed,

Press “UP” and “DOWN” buttons	Hold the buttons for 3 seconds	Then, the child-Lock icon will be unlocked and removed
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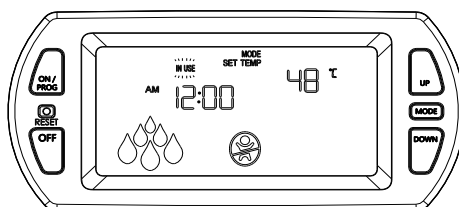


6. Press **“UP”** or **“DOWN”** button to adjust the setup temperature. The temperature adjustable range is from **36°C**(97°F) to **48°C**(118°F) for norm check (Max. **50°C** models); **36°C**(97°F) to **60°C**(140°F) for normal domestic models and **36°C**(97°F) to **75 °C** (168°F) for commercial models.

Press “UP” or “DOWN” to adjust the temperature	The factory default temperature is 48 °C , The adjustable temperature range is 36°C (97 °F) ~ 48°C (140 °F); 36°C (97 °F) to 60°C (140 °F) and 36°C (97 °F) to 75°C (168 °F)	“IN USE” and “SET TEMP” icons flicker
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7. If there is no signal input within 3 seconds, the system will automatically turn to child-lock mode and the child-Lock icon will be shown.

Within 3 seconds	No signal input	“IN USE” & “Child-Lock” icon flicker
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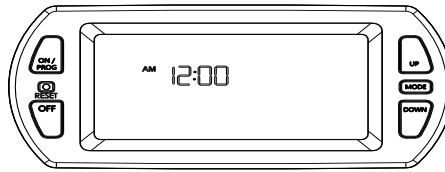


Set up High Temperature to 49°C (120 °F) ~ 52°C (126 °F) (Only for Max. 50°C models.)

Caution: To be setup by certified installers only.

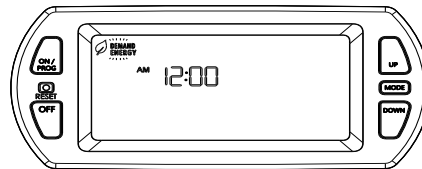
1. To turn off the water heater, press "OFF".

Press " OFF " button to turn off the gas water heater	The LCD display AM12:00	Turn off the gas water heater
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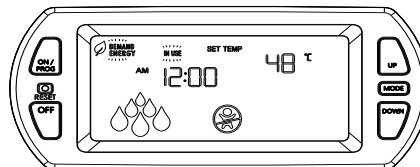
2. Press and hold "**OFF**" + "**UP**" + "**DOWN**" buttons. When the "**DEMAND ENERGY**" icon starts flickering, start turning into the High temperature Setting Mode.

Press and hold " OFF " + " UP " + " DOWN " buttons	Till " DEMAND ENERGY " icon starts flickering	Turn into High Temperature Setting Mode
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3. Press the "**ON/PROG**" button to turn on the gas water heater.

Press " ON/PROG " button to turn on the gas water heater	The default temperature is 48 °C	" DEMAND ENERGY " & " IN USE " icons flicker
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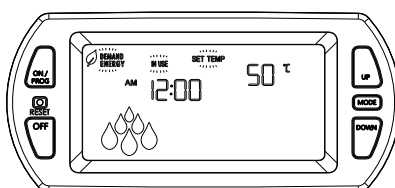


4. Press and hold the "**DOWN**" and "**UP**" buttons for 3 seconds to unlock and remove the Child-Lock icon.

Press the “UP” + “DOWN” buttons	Hold the buttons till the Child-Lock icon is removed in the LCD panel.	Then, the Child-Lock is unlocked
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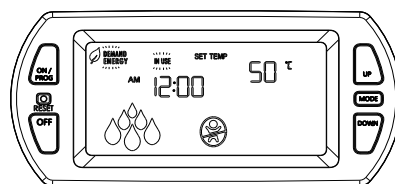
5. Press “UP” or “DOWN” buttons to adjust the preferred setting temperature. Adjustable temperature range is from 49°C(120 °F) ~ 52°C (126 °F)

Press “UP” or “DOWN” buttons to set up the preferred temperature	The default temperature is 48°C, and the adjustable temperature range is from : 49°C (120 °F) ~ 52°C (126 °F)	“IN USE” & “SET TEMP” icons flicker
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6. If there is no signal input within 3 seconds, the system will automatically turn to child-lock mode and the child-Lock icon will be shown.

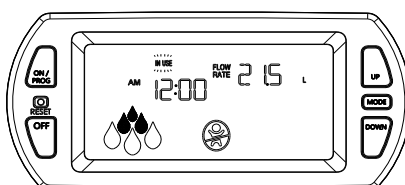
If there is no signal input	Within 3 seconds	“IN USE” & “Child-Lock” flicker
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d) Check Flow Rate

- To check the flow rate, press the “MODE” button. It will display the current flow rate.
- If there is no input within 5 seconds, it will turn back to the “temperature setup mode”.
- The minimum flow rate it can display is 1.2 L (0.3 GPM).

Press “MODE” button	Display the current Water Flow Rate	“IN USE” & “Child-Lock” flicker
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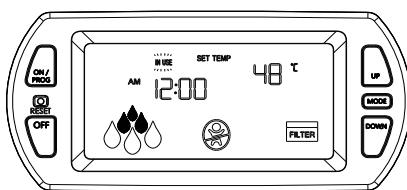


e) Cleaning Water Filter Icon

- When the “FILTER” Icon is shown, the water filter must be replaced immediately.

2. Please refer to the section of how to remove and replace the water filter in the installation instructions.
3. After replacing the water filter, press and hold the “**DOWN**” and “**UP**” button for 3 seconds to remove “**FILTER**” icon.
4. Failing to replace the water filter may reduce the water flow rate from the tap or the shower and affect the performance of the water heater.

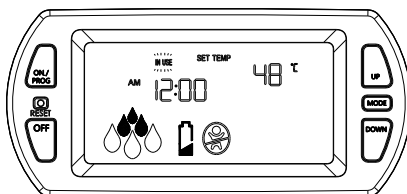
“ FILTER ” icon shown	Must replace the water filter instantly	Press and hold “ UP ” and “ DOWN ” buttons for 3 seconds to remove “ FILTER ” icon
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f) Low Battery Icon


1. On certain units, “**LOW BATTERY**” icon will be shown if the battery charge is less than 3.7 volts.
2. Please remove and replace with new battery. If the battery charge is too low, all functions will be disabled.


“ LOW BATTERY ” icon shown	Must replace the battery instantly	Press and hold “ UP ” and “ DOWN ” buttons for 3 seconds to remove “ LOW BATTERY ” icon
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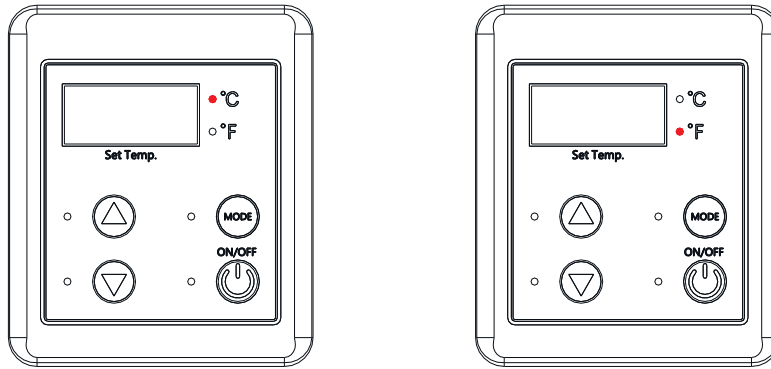


Outdoor Installation Models (ECO30e, AQUA28e, P21e)

a) Temperature Unit (°C/°F) Setting:

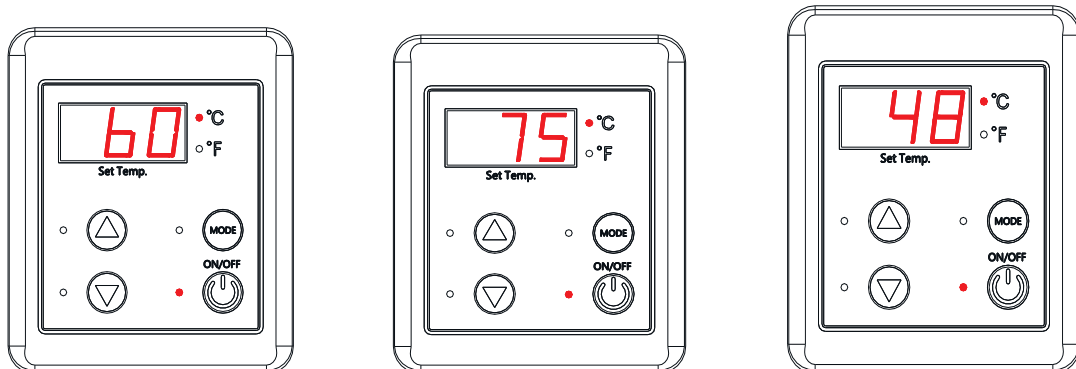
While plugging in, the icon “°C” starts flicking 5 seconds. Press  button to switch to °F, or press

 button to switch to °C.





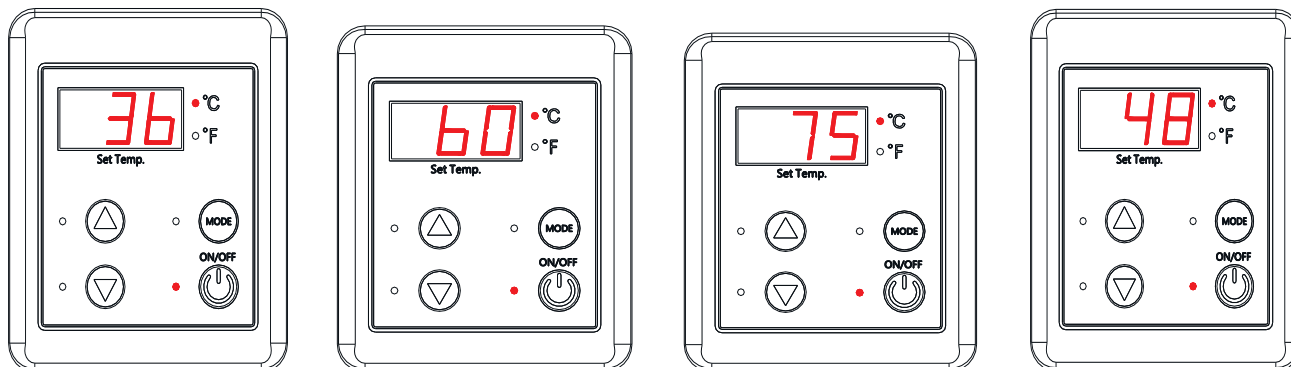
b) Turn On Gas Unit :

Press “ON/OFF” button to turn the gas unit on. It will show the factory default temperature and it shows the factory default temperature 60°C(**Max. temp. 60°C model**), 75°C(**Max. temp. 75°C model**) and 48°C(**Max. temp. 50°C model**)



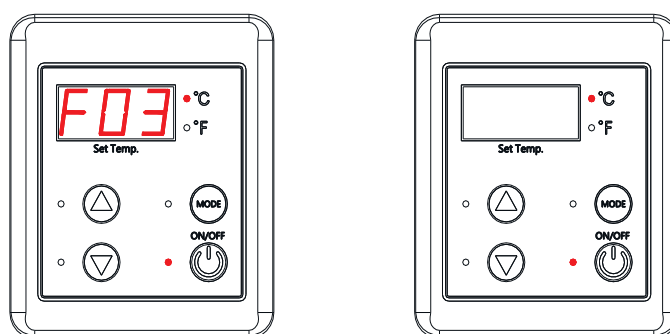
c) Temperature Setting:

Press  or  button each time to increase 1°C or decrease 1°C. The temperature setting range is between 36°C ~ 60°C (Max. temp. 60°C model), 36°C ~ 75°C (Max. temp. 75°C model) and 36°C ~ 48°C (Max. temp. 50°C model)




d) Remove Error Code :

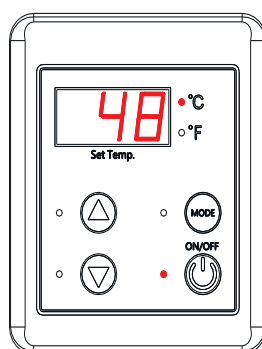
Press “MODE” button for 3 seconds at least, and the error code will be erased. Then press ON/OFF button to turn off and then “ON/OFF button to turn on the gas unit.



e) Remove High Temperature Setting Function:


(Only for Max. temp. 75°C model)


Press  + MODE buttons for at least 3 seconds. While hearing 2 beep sounds, the high temperature setting function is removed. The LCD panel will show the original default temperature 48°C.



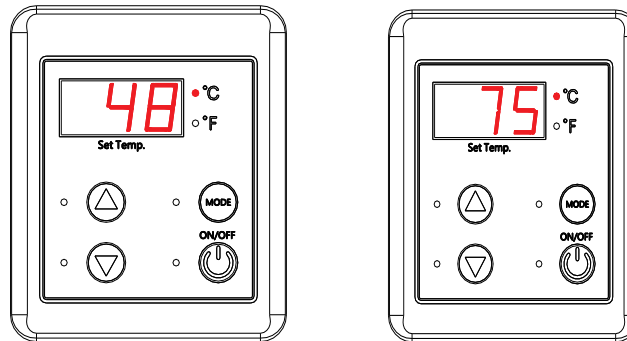
f) Activate High Temperature Setting Function:

(Only for Max. temp. 75°C model)


Press  + MODE buttons at least 3 seconds. While hearing 1 beep sound, the high temperature setting function is activated.

Press  each time to increase 1°C.

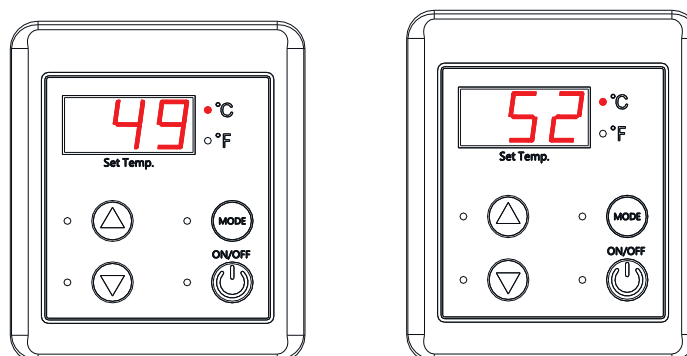
Temperature setting range: 48°C ~ 75°C

**g) Setting Compensation Temperature:**

(Only for Max. temp. 50°C model)


Press  + MODE buttons at least 3 seconds. While hearing 1 beep sound, it enters setting compensation temperature mode.

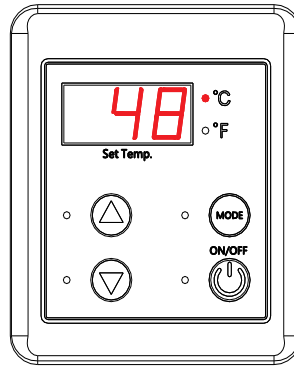
Press  each time to increase 1°C. Temperature setting range: 49°C ~ 52°C












h) Remove Setting Compensation Temperature Function

(Only for Max. temp. 50°C model)

Press  + MODE buttons at least 3 seconds. While hearing 2 beep sounds, the setting compensation temperature function is removed. The LCD panel will show the original default temperature 48°C.



i) LCD Panel Function Setting Table

Function setting	Setting status	Setting method
1. Clean filter 2. Erase error code	ON or OFF	Press  button 3 seconds
Learning	OFF	Press  +  buttons 3 seconds
Temperature setting	ON	Press  to increase or  to decrease temperature
Switch to high temperature setting mode (only for Max. temp. 75°C model)	ON	Press  +  buttons 3 seconds, it will enter high temperature setting mode.
Switch to compensation temperature setting mode (only for Max. 50°C model)	ON	Press  +  buttons 3 seconds, it will enter compensation temperature setting mode.

6. FREEZING PROTECTION**(ECO30i / ECO30e / ECO24e / AQUA28e / AQUA28i series)****Caution”**

- ✓ If electricity is not present and connected to the water heater, freezing may occur.
- ✓ Damage can occur from frozen water within the device and pipes even in warm environments.
- ✓ Repairs for damage caused by freezing are not covered by the warranty.

Freezing is prevented within the device automatically by the freeze prevention heater only when electricity is supplied.

Freezing cannot be prevented if the power is switched off to the unit. Do not remove the power plug from the wall outlet. (Freezing will be prevented regardless of whether the operation switch is ON or OFF).

- ✓ The freeze prevention heaters will automatically be switched on when the water temperature is less than 2°C; and be switched off when the water temperature is more than 10°C
- ✓ The freeze prevention heaters will not prevent the plumbing external to the unit from freezing. Protect this plumbing with insulation, heat pipe or electric heaters, solenoids, or pipe covers.

If water will not flow because it is frozen

1. Close the gas and water valves.
2. Turn off the power button.
3. Open the water supply valve from time to time and check whether water is running.
4. When the water is flowing again, check for water leaks from the equipment and piping before using.
5. If the heater or the piping is frozen, do not use the heater as it may cause damage.

7. MAINTENANCE



Warning

Turn off the electrical power supply, the manual gas valve and the manual water control valve whenever servicing the unit.

a) **Cleaning**

- ✓ It is imperative that control compartments, burners, and circulating air passage ways of the appliance be kept clean.
- ✓ **Clean as follow:**
 - ✧ Turn off and disconnect electrical power. Allow to cool.
 - ✧ Remove and clean the water inlet filter.
 - ✧ Remove the front panel by removing 2 screws. See removing front cover section.
 - ✧ Use pressurized air to remove dust from the main burner, heat exchanger, and fan. Do not use a wet cloth or spray cleaners on the burner. Do not use volatile substances such as benzene and thinners. They may ignite or fade the paint.
 - ✧ Use soft dry cloth to wipe cabinet.

b) **Flue System**

- ✓ The flue system should be inspected at least annually for blockages or damage.
- ✓ Keep the area around flue terminal free of snow and ice. The appliance will not function properly if the intake air or exhaust is impeded (blocked or partially blocked) by obstructions.
- ✓ Use a soft damp cloth to clean the panel. Do not use solvents.

c) **Combustion Chamber**

- ✓ Inspect burner observation window for cracks. Observe burner flames during unit operation. Flames should be steady and blue with no signs of yellowing. If not please contact your local dealer or distributor.

d) **Pressure Relief Valve**

Manually open the pressure relief valve to ensure proper operation.

e) **Condensate Outlet**

(For Condensing model ECO series only)

- ✓ Make sure the condensate tubing is not blocked.

f) **Replacing or Cleaning Water Filter**

- ✓ **To avoid burns, wait until the equipment cools down before draining the water.**

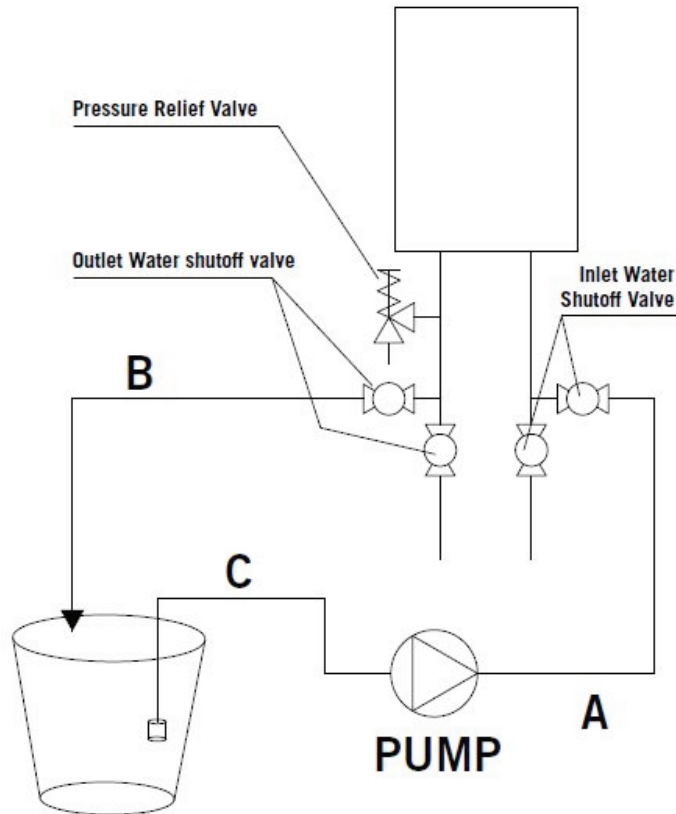
- ✓ If the water drain valve (with water filter) is covered with debris, the hot water may not run smoothly, or the unit may put out cold water.
- ✓ Check and clean the filter as explained below.
 - ✧ Close the water supply valve.
 - ✧ Open all hot water fixtures.
 - ✧ With a bucket ready, remove the inlet and outlet drain plugs.
 - ✧ Take the water drain valve (with water filter) out of the inlet.
 - ✧ Clean the water drain valve (with water filter) with a brush under running water.
 - ✧ Replace or install cleaned water valve (with water filter) and close the drain plugs. (Take care not to lose the packing).
 - ✧ Close all hot water fixtures.
 - ✧ Open the water supply valve and check that water does not leak from the drain plugs or water drain valve (with water filter).

g) Flushing Mineral Scale-Up

- ✓ Periodic descaling may be necessary in areas with high mineral content in the water. Scale buildup in the heat exchanger may result in lower flow rates, sounds (knocking and banging) in the heat exchanger.
- ✓ **Descaling using a pump (view the demonstration drawing below)**
 - ✧ Disconnect electrical supply from the water heater.
 - ✧ Shut off the water supply to the water heater using (installer supplied) shutoff valve.
 - ✧ Open hot water taps to drain and relieve pressure from the plumbing system.
 - ✧ Drain water from the unit's heat exchanger by disconnecting inlet and outlet water connections from the heater.
 - ✧ Connect a line (A) from the outlet of the circulating pump (installer supplied) to the inlet water fitting on the water heater.
 - ✧ Using another line (B), connect to the water outlet fitting on the water heater. Route the other end of this line into a descaling reservoir.
 - ✧ Make sure all connections are "water tight"
 - ✧ Fill tank with descaling solution so both lines inside are submersed. We recommend straight white vinegar. If using a commercial detergent, refer to manufacturer's instructions on dilution with water.
 - ✧ Operate the circulating pump.
 - ✧ Make sure there are no leaks and the solution is flowing from the descaling reservoir through the heater and returning to the reservoir.
 - ✧ Run solution through the heater until the solution returning to the descaling reservoir comes out clear. (Changing to a fresh solution may be necessary during

this process).

- ✧ Disconnect all lines and drain all solution from heat exchanger. Properly discard solution.
- ✧ Position a container below the hot water outlet and connect cold water supply. Open cold water supply isolation valve and flush heat exchanger with clean water.
- ✧ Shut cold water shutoff valve and reconnect hot water supply to the water heater.
- ✧ Reconnect electrical supply to unit, open water shutoff valves, and return the unit to service.



8. TROUBLE SHOOTING

Problems	Causes/Solution
Burner does not ignite when hot water is turned ON	1. Verify if gas and water supply valves are fully open?
	2. Verify the unit is ON, check control panel is ON
	3. Verify fuse at the AC Board is good
	4. Make sure the cold water inlet connection is plumbed to the right side of the unit when facing unit
	5. Flow rate must be greater than 2.3LPM for the system to activate
	6. Check water filter is not clogged
	7. Check condensate outlet is not blocked
Burner attempts to ignite but fails	1. Reset unit and try again. There may be air in the gas line
	2. Verify if the supplied pressure is matching the minimum inlet pressure requirement
Water takes time to get hot when turning the hot water fixture	1. Have you allowed enough time for the cold water in the pipes to drain out. The time period for hot water to reach your fixture is determined by the amount of water in the plumbing system between the water heater and the fixture, water pressure, and the flow rate of the fixture
Water is too hot	1. Selected temperature is set too high. To lower output temperature, see operation of the control panel
	2. Check water filter is not clogged
	3. Make sure the unit is using the correct gas supplied
	4. Mineral scale build-up in the heat exchanger
	5. Make sure the temperature sensor on the water outlet is contacting the copper tubing
Water is not hot enough	1. Selected temperature on the unit is too low. To raise output temperature, see operation of the control panel
	2. Make sure the unit is using the correct gas supplied
	3. Verify if the supplied pressure is matching the minimum inlet pressure requirement
	4. Cold water is mixing into the hot water lines
Lower water flow/pressure	1. Too many hot water applications are being used simultaneously or too much flow is demanded
	2. Verify if the supplied pressure is matching the minimum inlet pressure requirement
	3. If selected temperature on the unit is too high for the demanded flow rate, the water heater will close its motorized water valve, reducing the hot water flow rate in an attempt to reach the selected output temperature. Lowering the selected temperature will allow motorized water valve to open up for increased flow rate.
	4. Inspect the water path for obstructions. Make sure all showerheads, faucet aerators, and filters are clear of debris

Problems	Causes/Solution
Hot water temperature fluctuates at tap	1. Inlet water pressure is erratic due to fluctuating supply water pressure. For well to tank, the lowest pressure range setting is 275 - 414 kPa. Consult your installer or local plumber
	2. Set the temperature to a higher setting. This will allow you to use a higher flow to hot water thus meeting the minimum flow requirement of 1.5 LPM
Noisy burner/unit during operation	1. Make sure the combustion chamber is sealed. Leaky chamber may cause the system to operate erratically
	2. Improper venting. Venting that is unsealed or too long in run will result in unstable burner flames and noises. Ensure venting is in accordance with specifications
	3. Cross contaminations. Ensure that venting terminal is not partially blocked or fully blocked. Cross contamination between intake and exhaust may cause unstable burner flames and noise.
	4. Fan does not work properly. Fan replacement may be required
White smoke comes out of the exhaust	1. During colder weather when the exhaust temperature is much hotter than the outside air, the exhaust fumes condense producing water vapor

9. ERROR CODE DIAGNOSTICS

ECO Series AQUA Series P Series	Category	Problem Description	Operation Mode	How to Reset Error	Solution
I01	Ignition	No response of high voltage ignition	Shutdown	Turn-Off and Turn-on Water	1. Replace Control Box, bad igniter module
I02		Flame signal feedback prior to ignition	Shutdown	Turn-Off and Turn-on Water	1. Check whether the ignitor is normal, and check whether the wiring and connections are correct. 2. Replace igniter 3. Replace gas valve
I03		Flame off and re-ignite successful over 10 times	Shutdown	Turn-Off and Turn-on Water	1. Check if gas type and pressure is correct 2. Check for gas blockage (from inlet gas valve to burner) 3. Replace igniter
I04		Ignition more than 5 times	Shutdown	Turn-Off and Turn-on Water	1. Check that the gas is turned on at the unit, or gas meter 2. Check if gas type and pressure is correct 3. Check igniter wiring 4. Check flame rod wiring 5. Ensure unit is properly grounded 6. Check igniter 7. Remove flame rod and check for carbon build-up clean with sand paper 8. Check valve wiring 9. Check valve outlet pressure 10. Replace gas valve
I05		Flame off and re-ignite fail over 5 times	Shutdown	Turn-Off and Turn-on Water	1. Check if gas type and pressure is correct 2. Check gas blockage (from inlet to burner) 3. Replace igniter
T11	Water Temp.	NTC at inlet water is open circuit	Shutdown	Auto Reset	1. Check for inlet NTC wiring for damage 2. Measure resistance of sensor 3. Replace inlet NTC
T12		NTC at inlet water is short circuit	Shutdown	Auto Reset	1. Check for inlet NTC wiring for damage 2. Measure resistance of sensor 3. Replace inlet NTC
T13		Inlet water temp. is greater than Set Temp.	Shutdown	Auto Reset while inlet Temp. lower than set Temp.	1. Check for check valve to be installed correctly 2. Check the piping of inlet and outlet direction 3. Replace NTC wire set
T01		NTC at outlet water is open circuit	Shutdown	Auto Reset	1. Check for outlet NTC wiring for damage 2. Measure resistance of sensor 3. Replace outlet NTC
T02		NTC at outlet water is short circuit	Shutdown	Auto Reset	1. Check sensor wiring for damage 2. Measure resistance of sensor 3. Replace NTC
T04		Outlet water over than 90°C	Shutdown	Auto Reset	1. Check if gas type and pressure is correct 2. Measure resistance of sensor 3. Replace NTC

ECO Series AQUA Series P Series	Category	Problem Description	Operation Mode	How to Reset Error	Solution
F01	Fan	No response from fan	Lock-out	Press and hold Off and Reset for more than 3 seconds	1. Check wiring harness to combustion fan. 2. Replace combustion fan
F02		Fan degrade during pre-purge	Shutdown	Turn-Off and Turn-on Water	1. Measure the voltage of power supply (red: 45V, blue: 26V). 2. Check Fan Corrugated Duct if broken 3. Replace combustion fan.
F03		Fan blockage during pre-purge	Shutdown	Turn-Off and Turn-on Water	1. Check flue terminal for blockage and remove blockage. 2. Replace cap for different venting configurations
F05		Fan blockage during water heater in use	Shutdown	Turn-Off and Turn-on Water	1. Check flue terminal for blockage and remove blockage
P01	Gas Pressure	No feedback of pressure sensor	Lock-out	Press and hold Off and Reset for more than 3 seconds	1. Check connections 2. Replace pressure sensor
P02		Outlet gas pressure is too low	Lock-out	Press and hold Off and Reset for more than 3 seconds	1. Check if gas type and gas pressure is correct 2. Replace gas valve
P03		Outlet gas pressure is too high	Lock-out	Press and hold Off and Reset for more than 3 seconds	1. Check if gas type and gas pressure is correct 2. Replace gas valve
P04		Outlet Gas Pressure fluctuate during operations	Lock-out	Press and hold Off and Reset for more than 3 seconds	1. Check if gas type and gas pressure is correct 2. Replace gas valve
V01	Valve	Gas Leakage	Lock-out	Press and hold Off and Reset for more than 3 seconds	1. Replace gas valve

ECO Series AQUA Series P Series	Category	Problem Description	Operation Mode	How to Reset Error	Solution
C01	Control Box	MCU setting error	Lock-out	Press and hold Off and Reset for more than 3 seconds	Replace control box
C02		MCU EEPROM error	Lock-out	Press and hold Off and Reset for more than 3 seconds	Replace control box
C03		MCU RAM error	Shutdown	Auto Reset	Replace control box
C04		MCU ROM error	Shutdown	Auto Reset	Replace control box
C05		MCU I/O error	Shutdown	Auto Reset	Replace control box
C06		MCU MUX error	Shutdown	Auto Reset	Replace control box
C07		MCU Clock error	Shutdown	Auto Reset	Replace control box
C08		Cap failure	Shutdown	Auto Reset	1. Check the cap is installed properly 2. Replace the cap
C09		Sequence error	Shutdown	Turn-Off and Turn-on Water	Turn-Off and Turn-On water
C10		Stack pointer overflow	Lock-out	Press and hold Off and Reset for more than 3 seconds	Press and hold Off and Reset for more than 3 seconds
C11		Modulation valve feedback error	Shutdown	Turn-Off and Turn-on Water	1. Check the Modulation valve connection 2. Replace the control box
C12		Blower feedback error	Shutdown	Turn-Off and Turn-on Water	1. Check the blower connection 2. Replace the control box

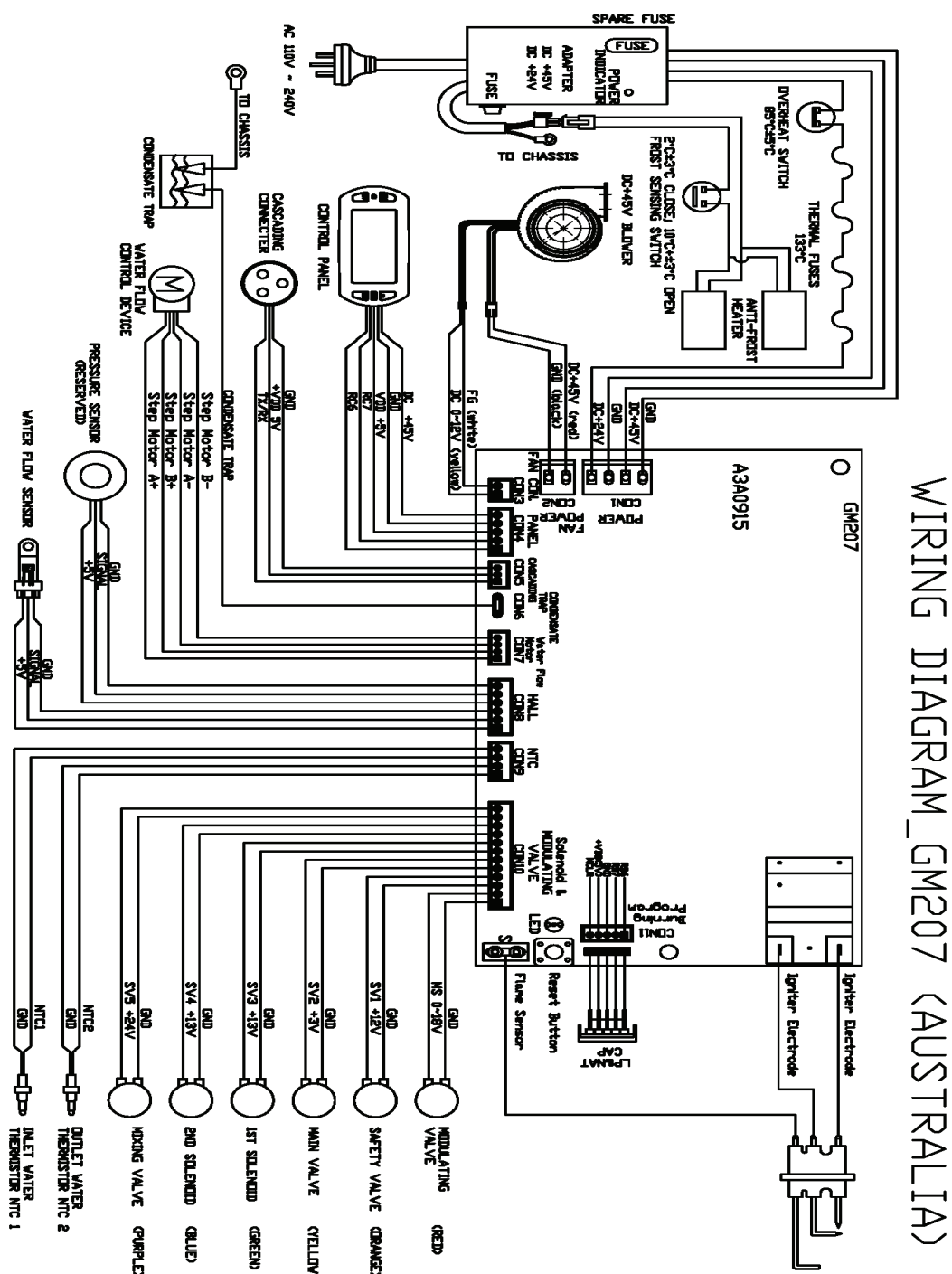
ECO Series AQUA Series P Series	Category	Problem Description	Operation Mode	How to Reset Error	Solution
W02	Fan	Water Leakage	Warning	Turn-Off and Turn-on Water	1. Check faucet for dripping water 2. Check plumbing if any water leak develops
W03		Condensate trap full	Shutdown	Turn-Off and Turn-on Water	1. Check the condensate trap drain for blockage. 2. Clean up the blockage 3. Replace the control box.
W04 Filter icon (LCD)		Clean filter	Warning	In OFF mode, press and hold UP and DOWN for 3 seconds	1. Remove the filter from inlet and clear the particle inside 2. Clean the error message
S02	Operation Overtime	Combustion continuously over 20hours	Shutdown	Turn-Off and Turn-on Water	Turn-Off and Turn-on water
H01	Heat Exchanger	Efficiency is lower than factory setting	Warning	Turn-Off and Turn-on Water	1. Check if gas type and pressure is correct 2. NTC oxidized 3. Replace water flow sensor 4. Rinse and clean heat exchanger
H02		Efficiency is higher than factory setting	Warning	Turn-Off and Turn-on Water	1. Check if gas type and pressure is correct
L03	LCD Control Panel	Communication error	Shutdown	Auto Reset	1. Check if the red LED indicator flash on control box 2. Replace control box
U01	Cascading Units (Link)	Master unit Communication error	Shutdown	Auto Reset	Replace multiple heater connector
U02		Slave unit Communication error	Warning	Turn-Off and Turn-on Water	Replace multiple heater connector
U03		Slave unit error	Warning	Press and hold Off and Reset for more than 3 seconds	1. Check and reset slave units error. 2. Press RESET and OFF for 3 seconds from Master unit reset.
	No Power				1. Check AC power 2.If it is fuse blown, replace the fuse
	No Display				1. Replace Control Box power cord 2. Replace thermo switch

10. ELECTRICAL WIRING DIAGRAM

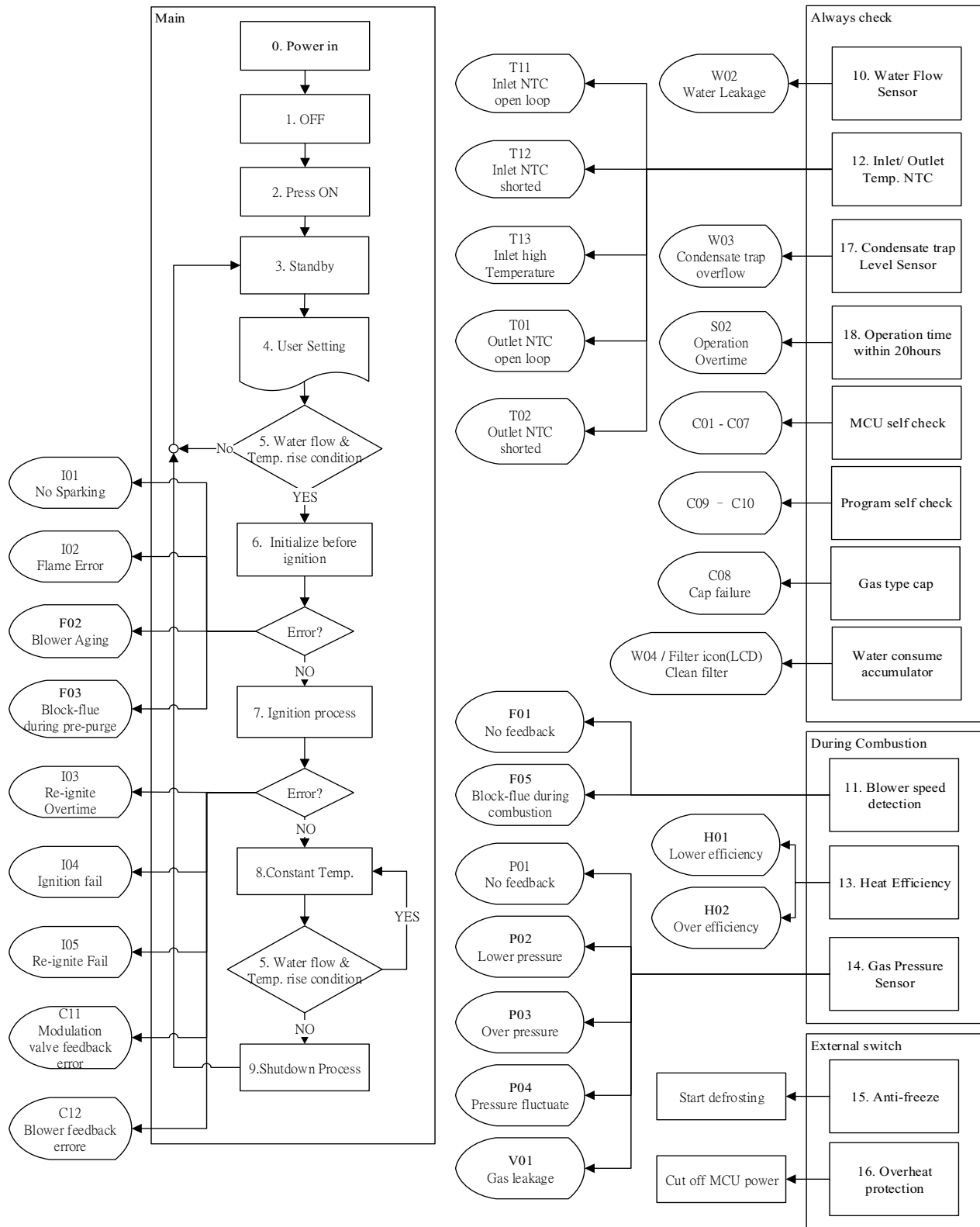


Caution”

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation. Verify proper operation after servicing.



11. FUNCTIONAL FLOW CHART



WARRANTY TERMS AND CONDITIONS

All enerMAX gas instantaneous water heating units are carefully checked, tested and subject to stringent quality controls.

This Warranty is valid in country of purchase only and is given by Energy Smart Water Pty. Ltd., Factory 2, 11 Dalkeith Drive, Dromana, Victoria, 3936 Australia. This appliance is warranted by Energy Smart Water to be free from defects in materials and workmanship for the periods as set out in the Limited Warranty table from date of purchase. The benefits offered by this warranty are in addition to your rights and remedies under Australian Consumer Law.

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to major failure. In the event of a minor failure, Energy Smart Water reserves the right to choose to repair or replace the appliance.

To make a warranty claim you must be able to supply proof of purchase. In the first instance, you should call Energy Smart Water on 03 9939 6722 or email esw@esw.net.au

Energy Smart Water will bear any expenses incurred for warranty claims, excluding the cost of transport for equipment service.

LIMITED WARRANTY

This Warranty covers any defects in materials when the product is installed and operated according to the enerMAX written installation instructions, subject to the terms within this Limited Warranty document. Improper installation may void this Warranty. This Warranty extends to the original purchaser and subsequent owners, but only while the product remains at the site of the original installation. This Warranty only extends through the first installation of the product and terminates if the product is moved or reinstalled at a new station.

What is covered?

Item	Residential Applications	Commercial Applications
Heat Exchanger (copper and ss) Components Only	10 years	5 years
All other parts and components Components Only	2 years	1 year

Energy Smart Water will repair or replace the covered product or any part or component that is defective in materials or workmanship as set forth as follows. All repair parts must be genuine enerMAX parts. All repairs or replacements must be performed by an individual or servicing company that is properly trained and licensed to do the type of repair.

Replacement of the product may be authorized by Energy Smart Water only. Energy Smart Water does not authorize any person or company to assume for it any obligation or liability in connection with the replacement of the product. If a component or product returned to Energy Smart Water is found to be free of defects in material or workmanship, or damaged by improper installation or damaged during return shipping, the warranty claim for product, parts and labor may be denied.

Proof of purchase is required to obtain warranty service. You may show proof of purchase with a dated sales receipt or warranty card.

WARRANTY EXCLUSIONS

This warranty does not cover the following conditions:

- Damages, malfunctions or failures resulting from improper installation of the water heater and/or installations that do not meet applicable building codes, ordinances or normal plumbing and electrical trade practices
- Damages, malfunctions or failures resulting from improper installation of the water heater or failure to operate and maintain the water heater according to manufacturer instructions
- Poor product performance due to incorrect water heater sizing, incorrect gas supply lines, incorrect venting connections, incorrect combustion air openings, incorrect wiring or fusing, or incorrect electrical service voltage
- Damages, malfunctions or any and all failures caused by converting the water heater from natural gas to liquid propane gas or by converting from liquid propane gas to natural gas, or any attempt to operate the water heater with any fuel source not specified for the water heater
- Damages, malfunctions or failures caused by operating the water heater with any missing or removed parts or with parts that have been modified, altered or unapproved for the water heater
- Damages, malfunctions or failures caused by abuse, negligence, alteration, accident, fire, flood, freezing, lightning and other acts of God
- Heat Exchanger failures caused by operating the water heater in corrosive or contaminated atmospheres or in environments not specified for conventional water heater use or installation
- Heat Exchanger failures caused by operating the water heater when it is not supplied with potable water at all times

- Damages, malfunctions or failures caused by poor water quality, lime or mineral build-up or sediment build-up
- Damages, malfunctions or failures caused by operating the water heater at water temperatures not within the factory calibrated or specified temperature limits and/or exceeding the maximum setting of the high limit control
- Damages, malfunctions or failures caused by subjecting the heat exchanger to pressures or firing rates not within those specified by the rating plate;
- If the rating plate has been removed by an unauthorized person the water heater should not be operated
- Units installed outside of Australia and New Zealand
- Damage due to freezing

This Warranty does not apply to any product if the serial number or manufacture date has been defaced or removed.

This Warranty does not cover any product used in applications that use chemically treated water such as for swimming pools or spas. This water heater is suitable for filling large or whirlpool tubs with potable water. Refer to the Water Quality section in the Operation and Installation Manual (page 26).

- ✓ The warranty DOES NOT include:
 - a. Cost of consumables or accessories
 - b. Wear and tear, normal or scheduled maintenance
 - c. To the extent permitted by law, any damage to property, personal injury, direct or indirect loss, consequential losses or other expenses
 - d. Changes in the condition or operational qualities of the hot water unit due to incorrect storage or mounting or due to climatic, environmental or other influences.
- ✓ Any service call costs incurred by the owner or user of the hot water unit for any matter not covered by the terms of this warranty will not be reimbursed by Energy Smart Water, even if those costs are incurred during the warranty period. If the hot water unit is located outside the usual operating area of an enerMAX service agent, the agent's travel, freight or similar costs are not covered by this warranty and must be paid by the owner or user of the hot water unit.

The installer is responsible for your water heater's correct installation. Please complete the information below to keep for your records.

Purchased from: _____

Address: _____

Phone: _____

Date of Purchase: _____

Model No.: _____

Serial No.: _____

Installed by: _____ Installer's License No.: _____

Address: _____

Phone: _____

Date of Installation: _____