



### **IWH-1.5** Instantaneous Gas Water Heater

#### **Installation and Operating Instructions – Version 11.3**

Part Numbers: 043993 (Black Door); 042793 (White Door)

The IWH-1.5 instantaneous water heater is designed according the Australian Standards for installation in recreational vehicles. This water heater is not for use in space heating or marine application.

**WARNING:** If the information in these instructions is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

#### **WHAT TO DO IF YOU SMELL GAS**

- Evacuate all persons from the caravan or RV.
- Shut off the gas supply at the gas container or source.
- Do not touch any electrical switch, or use any phone or radio in the vehicle.
- Do not start the vehicle's engine or electric generator.
- Contact the nearest gas supplier or qualified service technician for repairs.
- If you cannot reach a gas supplier or qualified service technician, contact the nearest fire station or emergency services.
- Do not turn on the gas supply until the gas leak(s) has been repaired.

Installation and service must be performed by a qualified installer, service agency, OEM or the gas supplier.



**To avoid scalding, water supplied to the shower and hand basin should pass through a tempering valve to restrict the water temperature to 50 degrees C. We recommend the John Guest tempering valve 12mm – code 042586.**



**WARNING: Installation of this product must comply with the requirements of AS/NZS 3500.4**



**WARNING: Do not block any pressure relief valves if fitted when installing this Hot Water System.**



## Critical Installation Warnings

- Install in recreation vehicles only. RV's are recreation vehicles designed as temporary living quarters for recreation, camping, or travel use having their own power or towed by another vehicle.
  - All combustion air must be supplied from outside the RV, and all products of combustion must be vented to outside the RV.
  - DO NOT vent water heater with venting system serving another appliance.
  - DO NOT vent water heater to an outside enclosed porch area.
  - Protect building materials from flue gas exhaust.
  - Install water heater on an exterior wall, with access door opening to outdoors.
  - DO NOT modify water heater in any way.
  - DO NOT alter water heater for a positive grounding system.
  - DO NOT HI-POT water heater unless electronic ignition system (circuit board) has been disconnected.
  - DO NOT use battery charger to supply power to water heater even when testing.
- Do not install close to opening door or under room slide-out where the vent or inlet louvers can be obstructed.
- This appliance shall be installed by authorised persons only and in accordance with these installation instructions, AS5601.2, local gas fitting regulations, municipal building codes, electrical wiring regulations, local water supply regulations and any other statutory regulations.
  - Remove every packaging and transit protection in- and outside of the water heater
  - This appliance shall be installed by authorised persons only and in accordance with these installation instructions, AS5601.2, local gas fitting regulations, municipal building codes, electrical wiring regulations, local water supply regulations and any other statutory regulations.

### Installation Instructions for the IWH-1.5 Water Heater

The IWH-1.5 water heater is designed to be installable and removable from the exterior of the vehicle. The mounting instructions are for the PrecisionTemp surface mount door. No other door should be used. Doing so will void the warranty and cause the heater to malfunction and could cause damage or injury.

Please read these instructions before making any modifications to the construction of your caravan or RV.

### Selecting Installation Location

Review the following guidelines carefully before choosing the location for the water heater and ensure the location complies with the requirements of the current edition of AS5601.2 before installation. The water heater must not be installed in an area where the vent can be covered when any door or access panel on the coach is opened. The water heater should be located in an area where leakage will not result in damage to other items of, or in the structure. If such an area cannot be avoided, it is recommended that a suitable pan and drain be installed under the heater.

Install the heater as close to the gas supply as practical to minimize length of the gas line.

There must be a minimum of 25 cm of clearance between the vent cover and any other surface. Do not install where the vent is closer than 40 cm from any window or opening into the coach. Do not block or restrict door louvers, this will damage the IWH-1.5.

Although the IWH-1.5 can be mounted with zero clearance around the sides, top and bottom, be sure that the installation does not interfere with any wiring, plumbing or cabinets inside the

coach. Do not install the water heater or any other appliance where it can vent into an area covered by an awning, canopy or any other enclosure. For better support and ease of installation, install where the bottom of the heater case rests on a floor.

### **Installing Heater In The Side Wall Of An RV**

The model IWH-1.5 refers to the heater with a surface mount door. The IWH-1.5 can retrofit most tank water heaters without side wall modification regardless of side wall framing. It is possible, that you have to use a kind of adapter frame.

### **Surface Mount Installation**

Surround the opening on the skin of the coach with four to six inches of masking tape to protect the skin of the side wall.

Cut a rectangular hole with a width of 33 cm and a height of 33cm at the selected position.

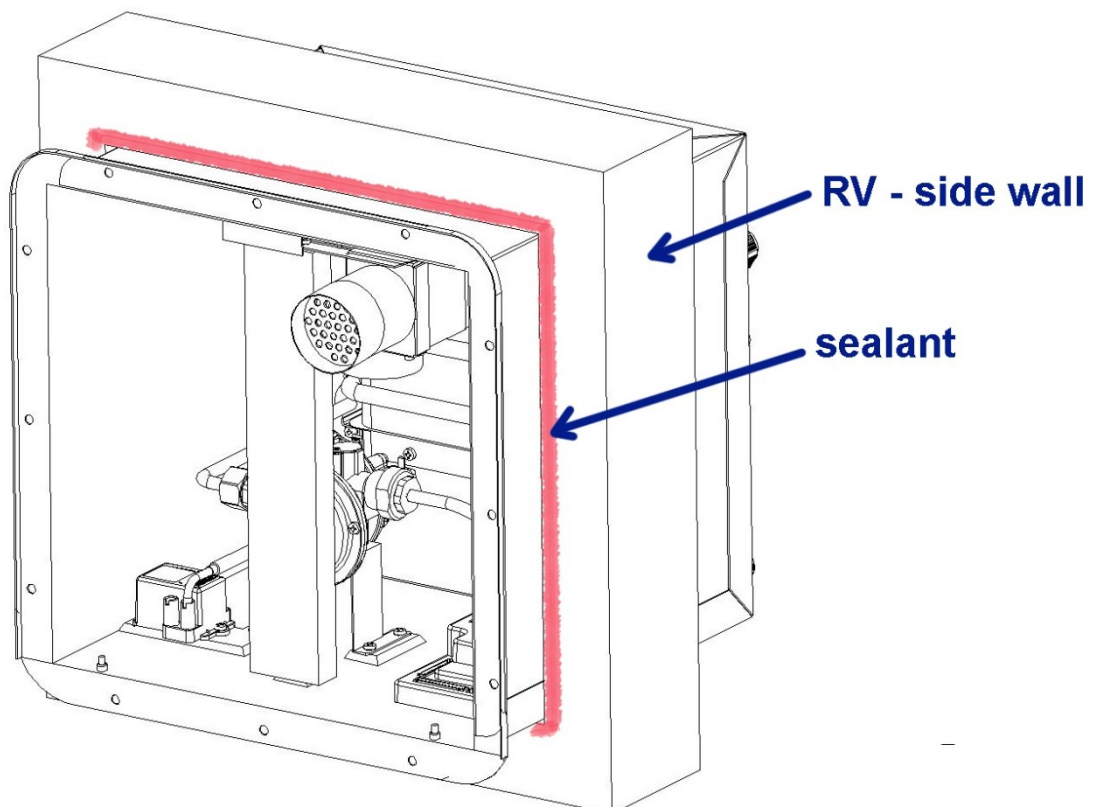
Push the IWH-1.5 into the opening. Center the heater in the opening and start a screw in the top center hole.

Run the screw down but not tight. Apply silicone or other appropriate sealant under the IWH-1.5 flanges.

Push the unit into the opening to bed into the sealant. Now screw in the other three center screws.

Apply silicone or other appropriate sealant heavily in the corners and on the flange around the corner holes.

Place the corner pieces in the corner so the holes line up and put four screws in each corner. Seal where the corner bracket meets the corner of the case. Remove excess sealant.



### Connection of the Gas Supply

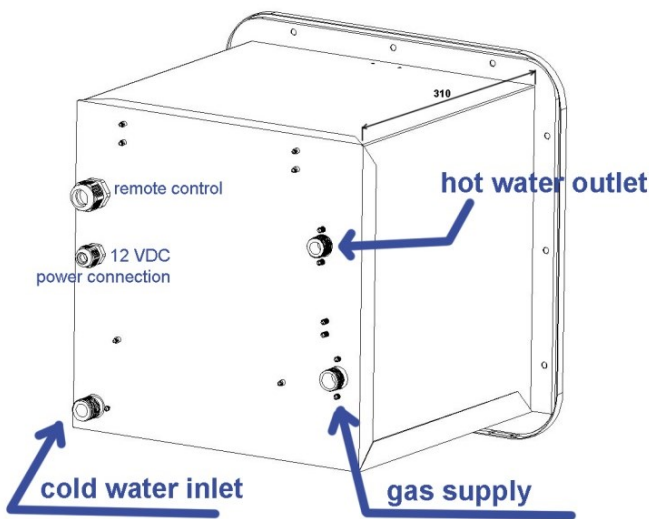
Connect an approved gas line at the 3/8" (or 1/2") standard gas inlet and use an approved sealant for this connection. Due to the high gas rate we recommend a gas supply pipe of 8mm minimum diameter. Gas pipe sizing and flueing must be in accordance with AS 5601.2

### Connection Water of the Supply and Hot Water Outlet

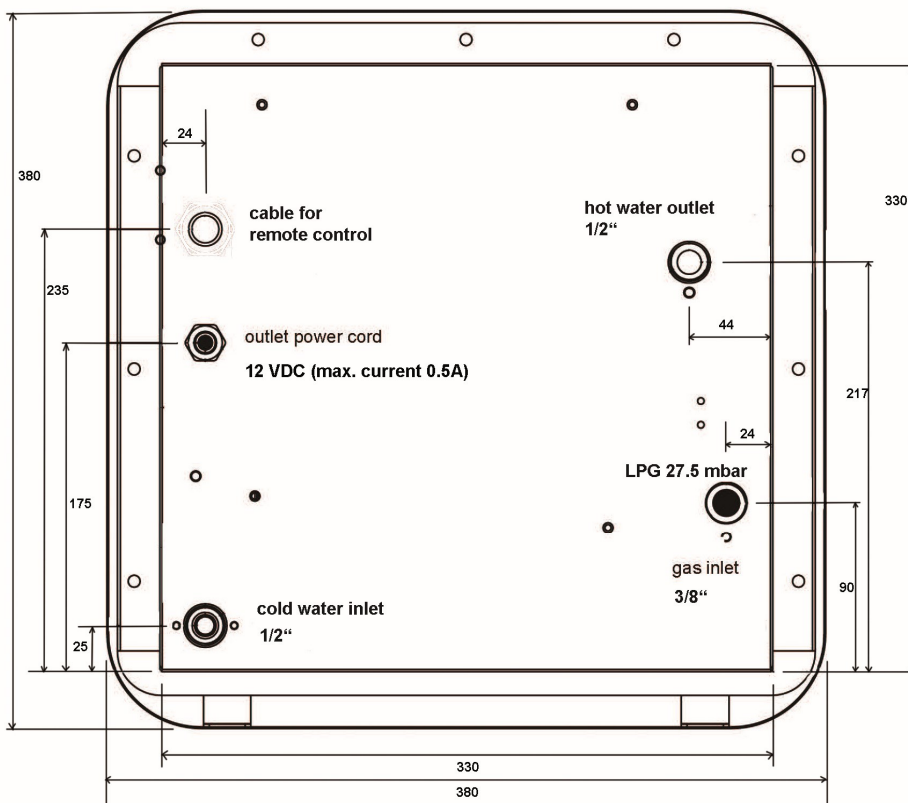
The cold water inlet and the hot water outlet are connected via 2 standard 1/2" male fitting. Use a rubber seal or other removable sealants.

Piping and components connected to the heater shall be suitable for use with potable water. When tightening water connections to the water line, be sure to back up the fittings with a wrench as to not damage the copper water tubing. Re-tighten the compressions nuts on the water fittings. With the power and gas supply to the heater turned off, pressurize the water system, purge it of all air and check for leaks.

The water heater is controlled and started by the water flow. If the water flow is higher than 2.5 l/min, the burner starts automatically and heats up the water to the desired temperature.



BACKSIDE VIEW - CONNECTIONS

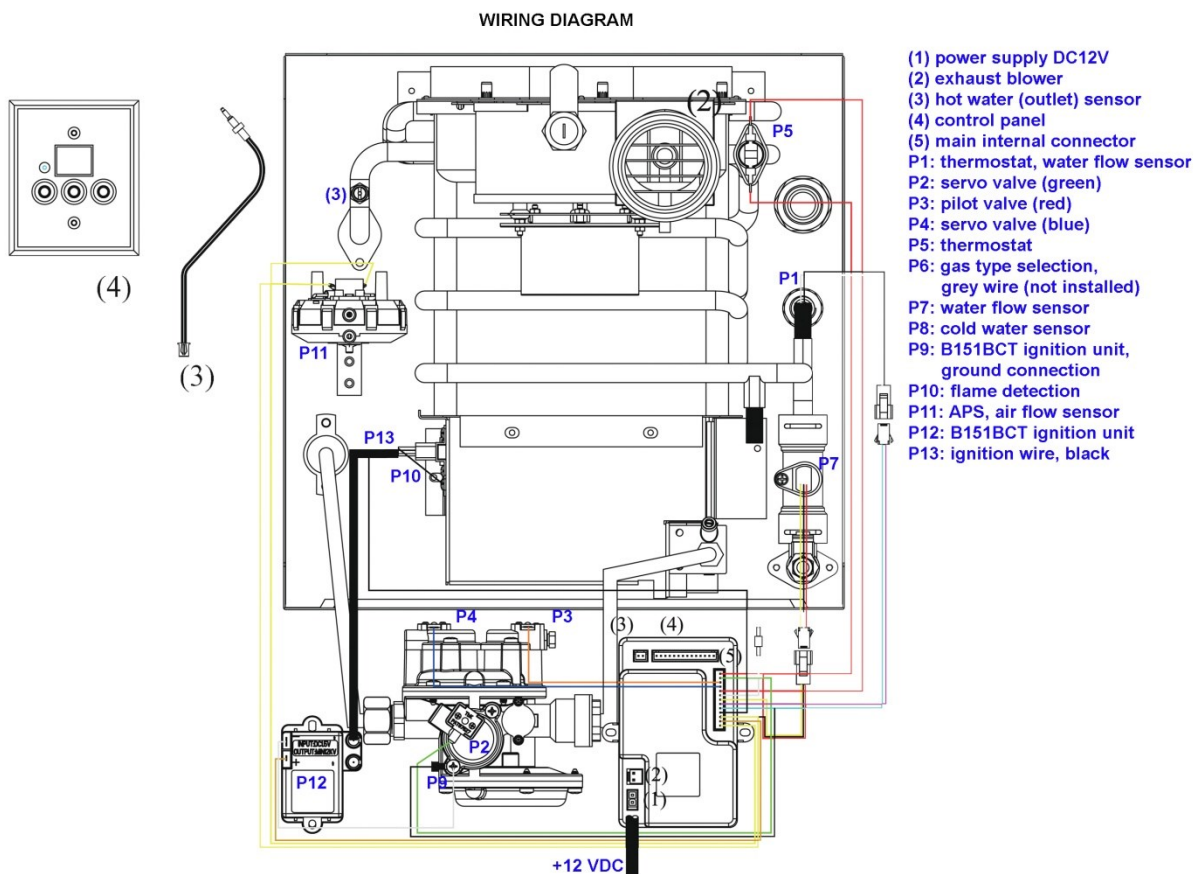


## Connection Electrical Supply and Remote Control

The water heater is designed for 12 VDC (10...15V, negative ground). The power leads are on the back of the heater and should be connected via a breaking switch to the 12 V system of the RV. The white wire is positive (+) and the black wire is negative (see sticker). A breaking switch is recommended for safety reasons, so the water heater could be switched of separately.

If the leads need to be extended or any wiring is extended or replaced inside the heater, use a minimum of 0.5 mm<sup>2</sup> wire with a temperature rating of 105°C. It is suggested that the heater be connected to a breaker rated at 2 amps.

**Never** connect heater to a power converter without a battery in line or a battery charger. Doing so could damage your heater and void the warranty. Be sure that the heater is connected to a "filtered" (pure DC) circuit of the converter. To test whether the circuit is pure DC, take a voltage reading using a multimeter set on the AC voltage scale. If the reading is more than 1 volt, the circuit is not pure DC voltage and should not be used. (See the tag on red and black power wire on the back of heater)



## Operating Instructions and first operation test

Note to installer: You must test the operation of this appliance after installation.

1. Pressurize the water system by turning on pump or city water pressure.
2. Purge all air from system by turning on the taps until a steady stream of water flows from the taps. Turn off taps.
3. Turn on the 12 VDC power supply.  
A testing sequence on the remote starts and after a few seconds, the display shows the last selected temperature. The production preset water temperature of the water heater is 45° C. The selected water temperature is stored in nonvolatile memory. Even after disconnecting the electric power, the former selected temperature will be displayed. This is a very useful feature as you don't have to select your desired temperature again in case of a power loss.  
For colder (blue button) or warmer water (red button) press the buttons till you reach the desired temperature.
4. Turn on the gas supply at the tank and the manual gas valve if installed in system. Heater will remain dormant (and will not use any gas) until a water tap is opened and the heater senses a water flow of at least 2.5 l/min.
5. Turn on the hot water tap (water flows and/or pump starts). The heater will fire up within two seconds and hot water will start to flow from the tap in the time that it takes to get through the plumbing from the heater to the tap. Hot water delivery will continue as long as the water is flowing. Depending on the length of the hot water line, it might take up to 20 seconds until the hot water comes out of the tap.  
After the first installation or when you change the gas bottle, it might need 3-5 trials, until the gas has reached the burner and you have ignition. On the display failure E1 is shown, which means no flame detection. When E1 appears, just turn the water tap on and off to trigger a new ignition sequence.  
After the burner ignites you will see the current temperature on the display. Depending on the water flow and the ambient temperature of the cold water, it will take some seconds, until the control reaches the desired water temperature.
6. When you turn-off the hot water tap, the heater will shut off and remain in "stand-by mode".
7. With the ON/OFF button of the remote control, you can switch off the water heater so the burner is not activated via the water flow.



## Troubleshooting

The IWH-1.5 is equipped with a microprocessor based self-diagnostic system. Possible errors are displayed on the LED display of the remote control.

### Failure code shown in the display

E1	Pilot flame doesn't light up after 10 sec.
E4	Flame controller delivers a signal before water tap is opened.
E5	Broken circuit of NTC
E6	Short circuit of NTC or hot water exceeds 85°C
E7	Flameout for many times because of unstable ionization signal.
E8	When power is ON, the water flow is > 3 l/min.
E9	Failure of pressure switch
EA	Damaged NTC
EB	Damaged CPU or circuit
ED	Memory error of CPU
EE	Damaged CRC

### Heater does not start when the water turns on

1. Be sure all electrical connectors are secure and the polarity is correct.
2. Be sure power is on and panel breaker is not tripped.
3. Check electrical contacts in electronics drawer. Be sure the connector with "+" and "-" power wire is plugged into board. Using a voltmeter, check for 12 Volts on this connector.
4. Confirm the water heater is switched on via the ON/OFF button on the remote control.
5. Be sure there is a battery in the system. Never connect the heater directly to a power converter. Some converters have circuits that are not pure DC.
6. Be sure the gas valve at the tank is "On" and there is gas in the tank.
7. Be sure that the water flow is at least 2.5 l/minute.
8. If you have changed the gas bottle it takes a while until the gas lines are filled with gas and the gas reaches the water heater.  
If E1 is displayed, there is no flame detection. Close the water tap for a few seconds and open it again. Depending on the length of the gas line, it may take several attempts until you have ignition.  
When you have flame ignition, you will see the current water temperature rising in the display.
9. If the water temperature is not reaching the desired temperature, you may have a too high water flow or you have extremely cold incoming water. Reducing the water flow will rise the outgoing water very quickly to the desired temperature.

## Maintenance

### Routine Maintenance

All tap aerators and showerheads should be cleaned regularly.

It is recommended that the IWH-1.5 be inspected by a qualified service technician at least once a year. Particular attention should be paid to the following:

1. Be sure that the air inlet openings and flue area (screen) are clear of any debris or obstructions, (leaves, bug nests, spider webs, etc.)
2. Check that heater mounting is still secure to the RV and that there are no areas for potential water leaks.
3. Open the cover of the heater and inspect for debris or obstructions under the burner, around the blower motor or in flue hood.
4. Visually inspect wiring. Be sure there is no chafing of the insulation. Be sure that the direct spark ignition, the ground and the flame detection cable is secured to the electrodes at the left side of the burner.
5. Inspect the interior surface of the housing for any cracks or corroded areas that could allow penetration of gases into or out of the interior of the vehicle. Check especially around the Hot Water, Cold Water, Gas and electrical connections.
6. Check for soot around the flue. Soot is a sign of incomplete combustion and a qualified service technician should be notified to correct the problem.
7. Check the pressure relief valve if it's tight under normal conditions. Test also the operation of the drain valve for proper function.  
Note: never open the drain valve during the operation of the water heater.
8. Turn on the power to the water heater and open a hot water tap to inspect the flame of the burner. The flame should be of the normal bluish appearance that indicates proper combustion. You can observe the flame through a line of small holes at the front side of the burner.
9. Depending on the environmental conditions, the exhaust pipe might get a matt surface out of aluminum oxide. This is normal and a kind of protection surface.

### Winterising and draining water

It is not recommended that you operate water system at below zero temperatures. Any freezing of the water heater or other plumbing components can cause severe damage that is not covered by warranty.

NOTE: Under no circumstances, however, should you travel under freezing conditions without first draining water from the unit. To drain the system:

1. Turn off water pump and the power and gas to the heater. Open the drain valve by turning the handle to a 90° position from the normal position.
2. Open drain valve that was installed at hot water outlet fitting of heater.
3. Open at least one hot and cold water tap in the coach. This should drain the system.

Before storing the system for the winter, the plumbing system must be winterized. This can be done by either of the following methods:

All water should be drained from the system. To do this, open one tap at a time, using compressed air (less than 2 bar) to purge the system of all water.

Recommendations of your RV manufacturer should be followed. Since the IWH-1.5 has no storage tank, there is no need for a water heater bypass kit. It holds less than 0.3L of water. The water system can be filled with RV, non-toxic anti-freeze, which doesn't affect copper and brass. When you see the anti-freeze coming from the hot water tap, the heater is protected.



## Specifications

Gas supply pressure propane (mbar)	27.5
Burner pressure propane (kPa)	2.3
Nominal max. input in kW (propane)	10.7
Maximum consumption (g/h)	765
Maximum consumption (MJ/h)	38.5
Minimum input in kW	2.7
Injector	Ø1.87mm x 4
Burner Pressure (kPa)	2.3
Efficiency (%)	>90
Maximum water pressure (bar)	5.0
Minimum water pressure (bar)	0.5
Minimum starting water flow (l/min)	2.5
Shut down water flow (l/min)	1.3
Selectable water temperature (°C)	35 ..... 60
Temperature rise at 3.3 l/min (°C)	37.7
Precondition for a stable min. temperature of 35°C	water inlet temp. 15°C at 2.7l/min
Power supply voltage VDC	10.5 ..... 15
Maximum current consumption (A)	0.44

## Who to Contact

For service and spares, please contact your selling agent:



### Camec Pty Ltd

#### **Head Office – Victoria**

47-63 Remington Drive  
Dandenong South, Vic 3175  
Australia  
Phone: (03) 9799 6455  
Fax: (03) 9799 6466  
Email: [camec@camec.com.au](mailto:camec@camec.com.au)

#### **New South Wales Branch**

Units 2 & 3  
No. 1 Koonya Circuit  
Caringbah NSW 2229, Australia  
Phone: (02) 9525 2588

#### **Queensland Branch**

Bldg 3 Archerfield Industrial Park  
Cnr Kerry & Beaudesert Road  
Archerfield, Qld 4108  
Phone: (07) 3710 9000  
Fax: (07) 3710 9011

#### **Western Australia Branch**

190 Welshpool Road  
Welshpool WA 6106, Australia  
Phone: (08) 9351 0044

#### **New Zealand Branch**

44 Montgomerie Road  
Mangere Auckland NZ  
Phone: (64) 9257 2419