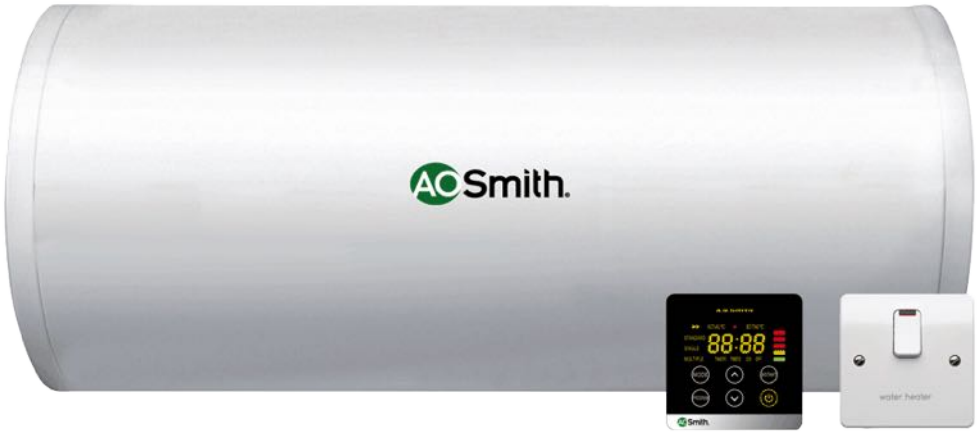
No. 1 Water Heater in USA

Intelligent Water Heater (CEWHR)

CEWHR-40PE6/CEWHR-40
CEWHR-50PE6/CEWHR-50
CEWHR-80PE6/CEWHR-80
CEWHR-100PE6/CEWHR-100



User Guide

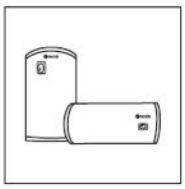
About A.O. Smith

In 1936, A. O. Smith developed and patented a technology to glass-line water heaters. Over the years, A. O. Smith has gained the respect and support of homeowners, contractors, architects and specifying engineers in over 60 countries by providing innovative, energy efficient products designed for years of trouble-free service.

Today A. O. Smith Water Products Company, the largest water heater manufacturer in the world, is a global leader in innovative technology and energy efficient solutions.

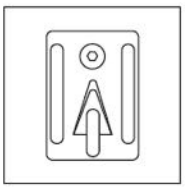
What's in the box?

Electric Water Heater

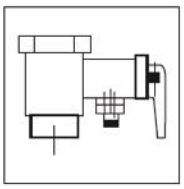


User Guide

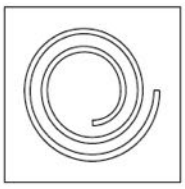
Wall Mounting Accessory



Safety Valve



Drain Pipe

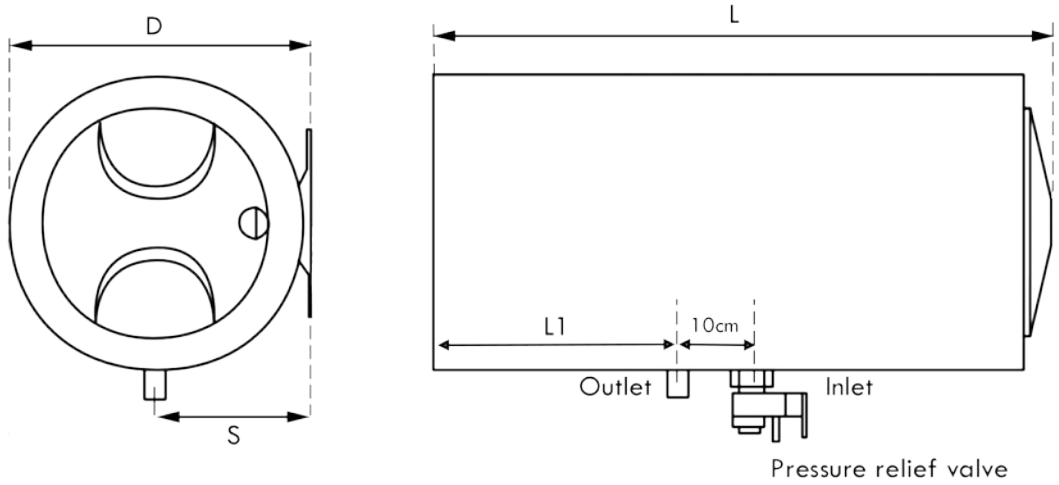


Contents

Specifications

Type	CEWHR - Intelligent Water Heater			
Rated volume (L)	40	50	80	100
Power (kW)	2.0/3.3	2.0/3.3	2.0/3.3	2.0/3.3
Voltage/Frequency (V/Hz)	230/50	230/50	230/50	230/50
Temperature range (°C)	35-75±5	35-75±5	35-75±5	35-75±5
Rated water pressure (MPa)	0.8	0.8	0.8	0.8
Minimum inlet water pressure (MPa)	2.0	2.0	2.0	2.0
Maximum inlet water pressure (MPa)	3.0	3.0	3.0	3.0
Inlet/outlet connection (inches)	½	½	½	½
Waterproof grade	IPX4	IPX4	IPX4	IPX4

A. O. Smith reserves the right to make product changes or improvements at any time without notice.

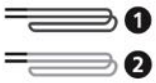


Dimensions

Model	CEWHR-40	CEWHR-50	CEWHR-80	CEWHR-100
L(mm)	718	838	863	1028
L1(mm)	275	340	365	446
S (mm)	217	217	250	250
D (mm)	Ø395	Ø395	Ø463	Ø463

Key Features

Blue Diamond Dual Elements (Patent ZL200510037670.1)



This water heater has two patented Blue Diamond heating elements which increase heating efficiency by up to 50%.

Blue Diamond Tank (Patent US6303183)

Patented A. O. Smith Blue Diamond Tanks provide superior durability. The longest lasting Blue Diamond tank in the world was used for 52 years.

Touch Control Panel

Access all modes of the water heater or reduce your water heating bills by turning down your water heater's thermostat from the control panel.

Hot Water Display

Temperature sensors in the heater provide a visual display of hot water from the control panel.

Instant Heating (Patent ZL200820185859.4)

Upon activation of the patented instant heating function, users will have hot water to take a shower within 2 minutes.

MAX Function (Patent ZL200820185859.4)

The patented MAX function allow users to get up to four times the capacity of hot water from a regular water heater.

Intelligent Dormancy

During periods when water is not used, the heater goes into power-saving mode.

Programmable Timer

The timer turns on the water heater for you so you don't have to turn it on manually. It also switches your heater to energy saving mode when not in use.

3 Year Full Warranty

3 years

With the highest manufacturing standards and strict quality control, we assure users durability with a 3 year full warranty on the whole unit, the longest warranty in Singapore.

Thermal Cut Out

The water heater employs a thermal cut out. In case any fault occurs and the water temperature exceeds the highest preset temperature (93°C), the switch rapidly cuts off the live and neutral line for user's safety.

High Efficiency Insulation

A polyurethane foam insulating layer without freon is used, which provides a good insulation and reduces heat loss effectively.

Pressure Relief Valve

The safety valve will relive pressure automatically through droplets of water when the system exceeds the rated pressure.

Anode Protection

A strong steel core anode rod is used for protecting the inner tank. It greatly prolongs the service life of the water heater.

Installation

CAUTION:

- Please wait for 30 minutes before using the heater for the first time.
- The heater should only be connected to a power source after a full installation which ensures secure mounting, piping, wiring and filling of the tank with water.
- To prevent injuries from lifting heavy equipment, the water heater should be installed by at least 2 persons.
- The water heater must be installed by a qualified personnel.

Mounting

This water heater should be installed at a location that is close to a power source, floor drain and water utilization point. In the installation area, it should be ensured that the water leakage from the heater or pipeline joints may not cause damage to the articles in adjacent regions or lower layers of the building. When installing the water heater, be sure to mount the water inlet and outlet pipes at the bottom of the heater.

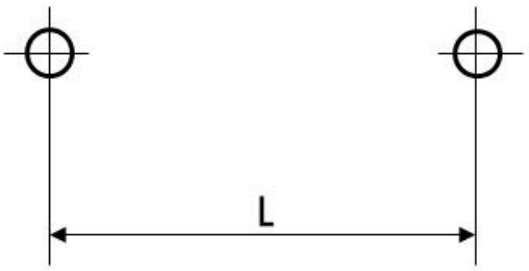
Mounting Procedures and Precautions

The surface for installation must be capable of supporting at least three times the weight of the water heater when filled with water. If the water heater is not installed on the bearing wall or is mounted on hollow brick wall, corresponding protective measures must be provided.

This water heater must be installed with the fixing accessories provided. The heater must be hung until the accessories are fixed firmly or else the heater may fall off, and serious injuries might be caused.

Mounting Guidelines

Drill two holes at least 90 mm in depth using an electric impact drill with a Ø 10mm bit. The holes must be level. Space between the two holes should be as shown in the table.

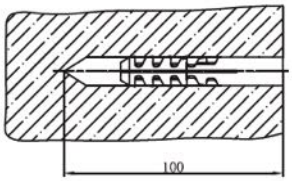


Model	L (mm)
CEWHR-40	260
CEWHR-50	380
CEWHR-80	380
CEWHR-100	380

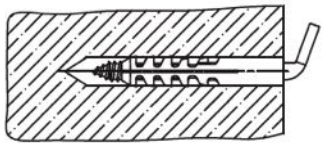
A plastic expansion tube must be placed into the drilled holes before the brackets are inserted.

It is necessary to use a special inner hexagon spanner to fasten the bolts into the expansion tubes, no other tools are permitted. Ensure the screw is not excessively tightened. This may damage the expansion tubes.

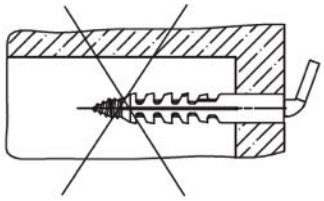
Insert the square holes on the upper of supporting rack at the back of the water heater onto the brackets, then press the water heater down firmly to ensure the holes are lodged against the brackets.



100mm depth



correct installation



incorrect installation

CAUTION:

- The mounting accessories provided can only be used for solid walls, as shown in the drawing above. Improper installation may cause the water heater to dislodge.

Plumbing Connection

Do not alter the installation position or block the relief valve. Connect the safety valve provided with this unit to the inlet of the water heater (inlet pipe has a blue cap). The arrow points to the direction of water flow (to the heater). The storage heater must be permanently connected to the water mains and the use of a hose set is prohibited. The safety valve must be connected to the discharge pipe, mounted downwards to a floor drain in a frostless environment. As water may drip from the discharge pipe during operation of the heater, a floor drain should be provided nearby. The pipes should not be blocked.

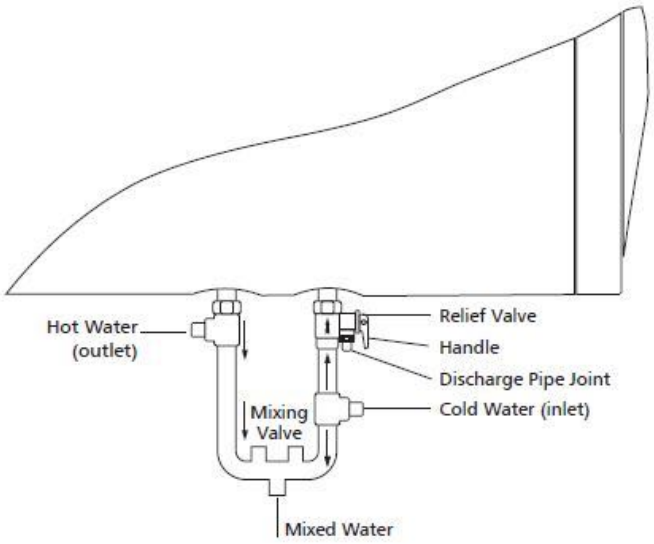
The hot water pipe is connected to the water outlet (outlet pipe has a red cap). If the water pressure of the inlet pipe approaches or exceeds the relief limit (0.80 MPa) of the safety valve, the valve will relieve pressure automatically. Refer to the following diagram for the pipe connection. Nylon hoses should be used for the connection between the tapping pipe and the heater.

We recommend the use of a double check valve assembly for the installation of the water heaters. The double check valve assembly is a safe and effective measure for preventing backflow and back-siphonage of water from the water heaters through the inlet pipe.

CAUTION:

- Apply proper sealant to the pipe joints to prevent leakage. Do not over-tighten the safety valve to avoid damage.

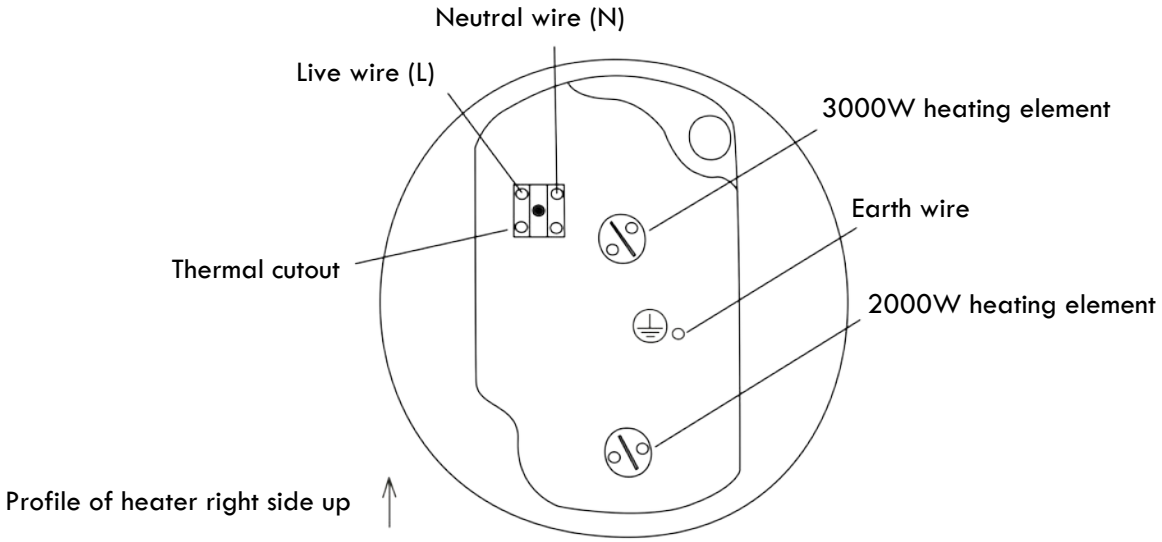
Water Inlet and Outlet Connection



Power Connection

This water heater must be permanently connected to the electrical supply through a double pole switch having a contact separation of at least 3mm in all poles incorporated in the fixed wiring. The insulation of the fixed wiring must be protected by an insulating sleeving with a temperature rating of at least 80°C.

Ensure the water heater is reliably grounded. The earth wire must be longer than the current carrying conductors. The maximum power of this water heater is 3300W, hence a single dedicated power supply circuit is proposed. The core area of the electric supply wire should not be less than 2.5 mm².



Water Filling

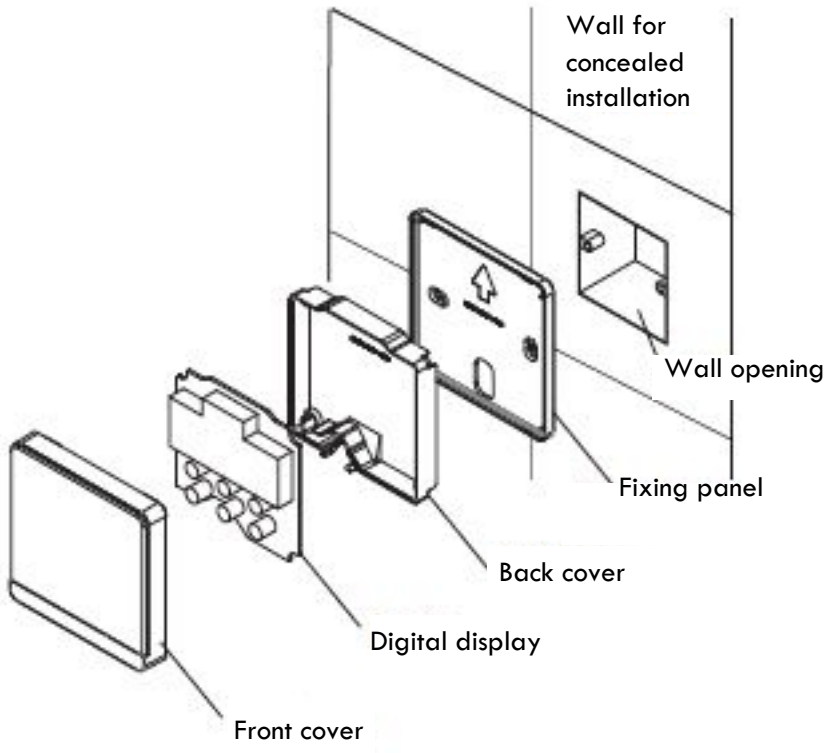
After all the pipes are connected, open the discharge valve of the water heater and then the feed valve. Fill the water heater with water and exhaust the air till a uniform water stream flows out of the hot water outlet. This indicates that the water heater has been filled up. Close the hot water discharge valve and check all connections for any leakage. If leakage occurs, empty the water tank, repair the leaked connection and then refill the heater with water. Do not close the feeding valve during the filling of water.

Control Panel Concealed Installation

For the convenience of operation, the control panel may be installed on a wall near the water heater.

Installing the remote panel in the wall:

- Dismantle the control box and remove the wire connected to the panel and the heater
- Thread the wire cable through the fixing panel and back cover
- Assemble the layers in the order as shown. Fix the control box to the wall by pressing firmly against the front cover.

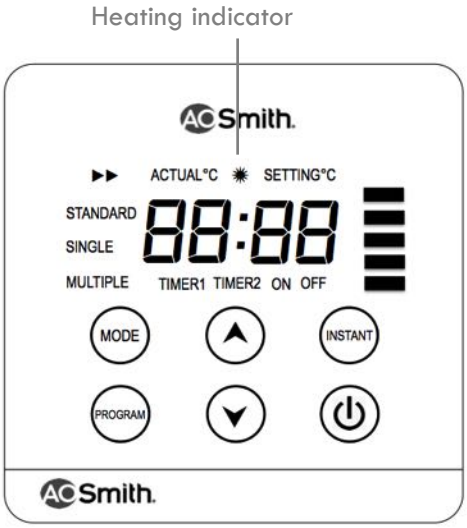


Directions For Use

CAUTION:
- Before using the water heater, ensure it is filled with water and that the power plug has been connected properly.

By default, the water heater is set to:
- Mode: Standard
- Time: 12:00
- Heat water till 70°C

If the water heater encounters a power outage, all settings will revert to default settings.

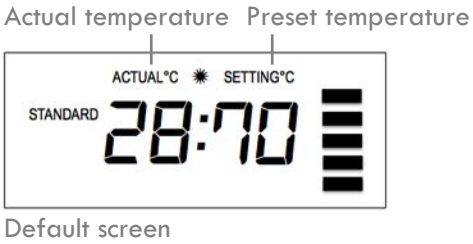


1. Initial power up

During the initial power up, all screen indicators on the control panel will glow and go out after two seconds. At this point, the water heater will be on standby mode.

2. Power on/off

Press the power button to turn the water heater on. The system is currently operating on default settings. The actual temperature and set temperatures are displayed and if the actual water temperature in the tank is lower than the preset temperature, heating begins and the heating indicator is lit.

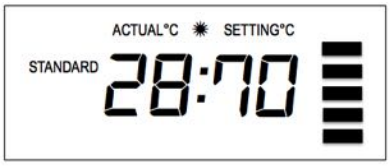


By default, the water heater is set to Time: 12:00 and Temperature: 70°C

3. Setting the temperature

The water heater can simultaneously display the actual temperature and preset temperature. The actual temperature is the actual temperature of the water heater and the preset temperature is the temperature the user would like the water to be heated to.

Press the "⮝" the "⮟" buttons to adjust the preset temperature. The preset temperature will blink while being adjusted. Holding down the adjustment buttons will cause the temperature to increase or decrease continually. The preset temperature can be set between 35°C to 75°C.



Timer off mode

Timer on mode, where timer lights are showing

4. Setting the clock

Ensure you are in 'timer off' mode, then hold down the 'Program' button for 3 seconds till the time on the screen flashes. Press the "⮝" the "⮟" buttons to set the hour, then press the 'Program' button again to confirm the hour. At this point, use the "⮝" and"⮟" buttons to set the minute. Holding down the adjustment buttons will cause the digits to increase or decrease continually. Press the 'Program' button to confirm the minute. At any point after 10 seconds of inactivity, the system will exit setting mode and the time at that point will be saved.

5. Setting the first timer

Users can determine a time range for their showers so the heater can automatically ensure water is heated during this period of time. At other times, the water heater will go into energy saving mode, storing water at a lower temperature to optimize heat retention and thus, saving energy. The timer will only work in standard mode.

Before setting the timer, ensure the clock is adjusted to the right time. Note that the timer start time is set first, followed by the end time. If users choose not to activate the timer function, press the 'Program' button repeatedly till the 'Timer 1' and 'Timer 2' indicator lights are off.

Press 'Program' button till the 'Timer 1' indicator is lit, then press and hold down the 'Program' button for 3 seconds till the time on the screen flashes. The indicator lights for 'Timer 1' and 'On' should be lit as you are now setting the start time for Timer 1. Press the "⮝" the "⮟" buttons to adjust the start time. The "⮝" and "⮟" buttons are programmed to make 30min increments or decrements. Press the 'Program' button again to finalize the start time and to start setting the end time. The end time is set in the same manner as the start time. While setting this timing, the indicator lights for 'Timer 1' and 'Off' should be lit.

For example, if the timer is set from 20:30 – 22:00, the setting panels should look like these:

Setting the start time for timer 1

Setting the start time for timer 2

6. Setting the second timer

The second timer is an added feature that can only be set between the hours of 21:00 – 08:00. Note that the timer will only work in standard mode. Before setting the timer, ensure the clock is adjusted to the right time. Note that the timer start time is set first, followed by the end time. If users choose not to activate the timer function, press the 'Program' button repeatedly till the 'Timer 1' and 'Timer 2' indicator lights are off.

The directions for setting the second timer are the same as setting the first timer. The difference is that while setting the second timer, ensure that the indicator light showing 'Timer 2' is lit before you press and hold the 'Program' button to enter the setting mode.

To view the timer settings, press the 'Program' button repeatedly to select either Timer 1 or Timer 2. Press and hold down the 'Program' button for 3 seconds. The time that appears is the start time. Press the 'Program' button again to show the end time. Press the 'Program' button again to exit the menu.

7. Heating modes

The 'Heating Mode' button allows users to switch between three heating modes, 'standard', 'single' and 'multiple'. By default, the system is set to 'standard' mode. Users may only select one heating mode at a time.

Standard mode: The system runs to conserve energy and the instant and MAX functions are not available.

Single mode: The system heats only half a tank and is good for very low-usage periods and the instant and MAX functions are not available.

Multiple mode: The system runs at high performance to meet the needs of larger, high-usage families.

8. MAX function

The MAX function is an A. O. Smith technology that allows users to get consistent hot water for long periods of time. This function will automatically activate if there is an unexpected surge in demand for hot water. The ▸▸ indicator will light up when MAX is activated.

The MAX function will not work in 'standard' mode.

MAX function activated

7. Instant heating function

In situations when all the water is used up in the heater, the instant heating function allows users to get 40°C of water in 2 minutes instead of waiting for 30 minutes. Press the 'Instant' button to enter instant heating mode.

The instant heating function will override any existing heating functions while it is activated. Water is heated very quickly in this mode. When the desired temperature is reached, the heating light will go off and the water heater will resume normal operation. The water heated is sufficient for a single shower.

Maintenance Instructions

DECLARATION: Only an A. O. Smith authorized service personnel may maintain and repair this water heater. Improper methods could result in serious injury or property damage.

WARNING - Electric shock: Before repairing the water heater, be sure to disconnect the water heater from the power source.

CAUTION: Prior to repair works, please refer to the troubleshooting chart.

Maintenance

If the water heater needs to be serviced, close the water inlet valve, then open the drain valve. Rotate the handle of the relief valve, release the nut connected to the water outlet joint of the inner tank and drain the water from the discharge pipe.

It is recommended that the tank be flushed to remove sediments which may have built up during operation. Specific operating procedures are as follows:

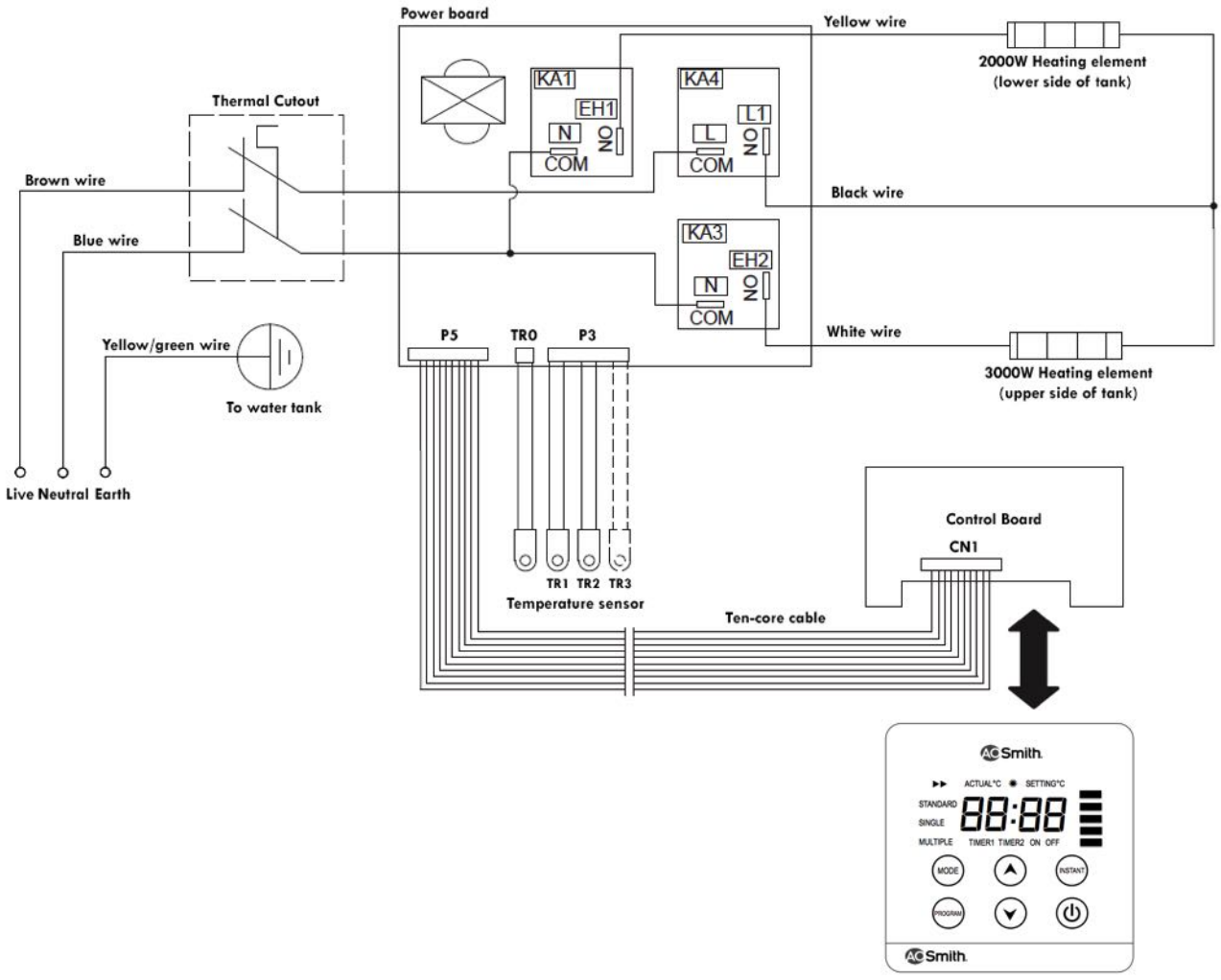
1. Disconnect the power.
2. Screw off the relief valve and remove the internal water inlet pipe of the water heater.
3. Connect the water outlet pipe connection of the water heater to the tap water pipeline and fill water from this end. The water inlet pipe connection is connected to floor drain by pipes. Discharge water from this end.
4. Open the water inlet valve to get the maximum tap water flow and flush the tank till the drained water from the tank becomes clean.
5. Connect the water inlet and outlet pipes again and put the water heater to use after a leakage test.

CAUTION:
- The drained water might be very hot and may scald.

Troubleshooting

Problem	Possible causes	Corrective action
Display is off No hot water	1. No power to heater 2. No power at electric socket 3. Failure in control circuit or internal wiring	1. Switch on power to heater 2. Check power socket 3. Contact local authorized dealer
Display is off High water temperature	1. High temperature limit switch tripped 2. Electrical circuit failure	1. Switch off power supply 2. Contact local authorized dealer
Display on, no hot water	Heating element or internal circuit failure	Contact local authorized dealer
Leaking from tank	Leaking tank or components	1. Switch off power supply 2. Contact local authorized dealer
Dripping from pipe joints	Unsealed joints	Reconnect pipes of the water heater and be sure to use sealant
Display “E0”	Blue wire of two-core terminal open circuit or short circuit	Contact local authorized dealer
Display “E1”	Red wire of two-core terminal open circuit or short circuit	Contact local authorized dealer
Display “E2”	Black wire of two-core terminal open circuit or short circuit	Contact local authorized dealer
Display “E3”	White wire of two-core terminal open circuit or short circuit	Contact local authorized dealer
Display “EH”	High temperature	Contact local authorized dealer
Display “EL”	Low voltage protection	Contact local authorized dealer
Display “EA”	Relay circuit issue	1. Switch off power supply 2. Contact local authorized dealer

Wiring Diagram



CAUTION:

- Before installing the heater, ensure that the power source and wires are suitable
- The heater should be earthed reliably. Ensure the earth wire is not in contact with the neutral wire or any pipes
- Once the temperature has been set and the relief valve installed, end users should not alter the installation location or tamper with the relief valve
- Hot water over 50°C will scald. Always test the water temperature by mixing it with cold water before coming into contact with it.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instructions concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with appliance.