

INSTALLATION MANUAL

Ground Mount Solar Hot Water System



1300 73 93 55

solargain.com.au

Revision 3 - August 2017

CONTENTS

1	Important Information
2	Installing Flat Plate Collectors
3	Installing Evacuated Tubes
4	Pitching Frame Assembly (optional)
5	Installing Tank, Valves & Fittings
6	Pump Station & Electrics
7	Operation Manual for Controller
8	General Installation Information
9	Maintenance
10	Trouble Shooting

HOT WATER CAN CAUSE SERIOUS INJURY



WARNING - Hot Water is dangerous! As a safety precaution, young children should always be supervised around hot water fixtures

THIS WATER HEATER IS ONLY INTENDED TO BE OPERATED BY PERSONS WHO HAVE THE EXPERIENCE OR THE KNOWLEDGE AND THE CAPABILITIES TO DO SO. THIS WATER HEATER IS NOT INTENDED TO BE OPERATED BY PERSONS WITH REDUCED PHYSICAL, SENSORY OR MENTAL CAPABILITIES IE: THE INFIRM AND CHILDREN.

As solar water heaters can generate water temperature in excess of 80°C, regulations require that an approved solar rated tempering valve shall be installed in accordance with the valve manufacturer's instructions. This is required to prevent water temperatures supplied to the house exceeding a preset safe maximum. The tempering valve is connected to the hot water outlet lines. The valve must be fitted by an authorised plumber at the time of installation or in retrofitting to existing systems.

CHECK THE WATER TEMPERATURE BEFORE USE, SUCH AS WHEN ENTERING A SHOWER OR FILLING A BATH OR BASIN, TO ENSURE IT SUITABLE FOR THE APPLICATION AND WILL NOT CAUSE SCALD INJURY.

Hot water systems can store water at temperatures that can cause scalding. Water temperatures over 50°C can scald and care needs to be taken to ensure that injuries do not occur through incorrect use of your water heater.

THIS WATER HEATER USES 240V AC POWER FOR THE ELECTRICALLY OPERATED COMPONENTS.

THE REMOVAL OR ATTEMPTED ALTERATION OF ANY ELECTRICAL COMPONENT MUST BE CONDUCTED BY A QUALIFIED ELECTRICAL SERVICE PERSON.

Care should be taken to avoid coming into contact with any pipe work or fixtures associated with the water heater collector flow and return lines.

FOR CONTINUED SAFETY OF THIS APPLIANCE, IT MUST BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.

Water from the solar collectors can be hot enough to create pressurized steam which can cause severe scalding - under NO circumstances should any alterations be made by unauthorised personnel.

IN ORDER TO KILL LEGIONELLA BACTERIA IT IS AN AUSTRALIAN STANDARDS REQUIREMENT (AS3498-2009) THAT THE HOT WATER IN THE STORAGE TANK BE HEATED UP TO AT LEAST 60°C ON A REGULAR BASIS, EITHER WHILE IN THE STORAGE TANK (SOLAR / ELECTRIC) OR BY A POST BOOST SET AT 70°C (GAS CONTINUOUS FLOW).

Pressure Reduction Valve (PRV 500kPa)

A pressure reduction valve of 500kPa maximum must be fitted immediately downstream of the cold water non-return isolation valve. **Failure to install a pressure reduction valve will void the warranty. Please note cold water supply line to the tempering valve must be run after the PRV to ensure equal supply pressure to the tempering valve.**

Note: In SA, WA & QLD (and some other areas of other states subject to local authority regulations) it is a requirement that an expansion control valve be fitted between the non-return isolating valve and the water heater.

Pressure Temperature Relief Valve (PTR)

An 850kPa and 99°C PTR valve is used on the Solargain water tank, which is located on the side of the water tank and is essential for its safe operation. The PTR valve is designed to allow 3-5% of total tank volume to discharge during heating to allow for hot water expansion. We recommend you operate the easing knob or lever on the PTR valve once every 6 months. It is important you rotate the knob or lift the lever gently and don't let the valve snap back to its seat as this can cause damage to seat and potential leakage.

Standards and regulatory Requirements

All Solargain solar hot water systems must be installed by an authorized plumber. All installation work must meet local authority standards, Australian standard (AS 3500.4) and the National Plumbing Code along with local electrical regulations. Where required, the relevant electrical and plumbing work will need to be certified to the satisfaction of local regulatory authorities.

Solar Hot Water Storage Tank

To obtain maximum performance the solar tank/system should be positioned as close as practical to the most used hot water outlets. This will reduce the amount of "lag time" which is the amount of cold water discharged through the outlet before the hot water reaches the outlet.

Frost Protection

Solargain 'Open Loop' split systems are fitted with an inbuilt frost protection mechanism in the solar control unit designed to automatically circulate a small amount of water through the solar collector array when freeze conditions occur. It is important to ensure that the power supply to the control unit is NEVER switched off during normal day to day operation. Solargain split system has been tested to level 2 – severe frost condition according to AS/NZS 2712:2007 Appendix E. Warranty will not apply to frost damaged collectors if the pump and/or controller are determined to be faulty for any reason, including power failure except within the first 12 months. If installation is in a frost area, frost protection is required. It is the home owner's responsibility to check the system before winter to determine that the system is circulating water to the collectors. This can be done by checking temperature of the pressure relief valve on a sunny day in the late afternoon. If the valve is hot the pump and controller are working properly and this verifies that the frost protection will function correctly. Failing to perform this check will render the home owner liable for the full expense of collector replacement should frost damage result. Solargain Evacuated tubes are designed for installation conditions where temperatures fall below 2°C or installation site is located above 800 meters altitude.

Going away on holidays?

If the water heater is left unused for two weeks or more, a small quantity of hydrogen gas (which is HIGHLY flammable) may accumulate in the top water cylinder. To dissipate this gas safely it is recommended that a sink or bath hot tap be turned on to dispel a couple of litres of water. During this procedure there should be no smoking, open flames or any electrical appliances such as washing machines or dish washers operating nearby. If Hydrogen is discharged through the tap, it will make a sound like air escaping. The power to the pump station (pump & controller) must be left in the on position at all times, failure to do so will result in serious damage to the solar system & void warranty.

Health & Safety

Solar hot water systems can be heavy so always use approved lifting devices when installing solar

hot water systems at heights. All workplace health and safety regulation must be adhered to by the installer. Solargain Pty Ltd will not be held responsible for any damage to person or property that results during the installation or subsequent use of this solar collector and related components.

Water Quality

Water in direct flow through Solargain Hot Water system must meet the following requirements.


Total hardness	200 mg/litre or p.p.m
Total dissolved solids	600 mg/litre or p.p.m
Electrical conductivity	850 μ S/cm
Chloride	250 mg/litre or p.p.m
Magnesium	10 mg/litre or p.p.m
Sodium	150 mg/litre or p.p.m
pH	6.5 to Max 8.5.

Additional Roof Support Requirement

No Additional roof supports are needed when installing Active Open Loop Split Systems. The collector when full weighs between 32kg and 110kg and covers an area between 1.2 and 5 square meters depending on the model. When installed in cyclonic areas, the use of an approved cyclone frame will be required. If you have any questions regarding the requirements of your location, please contact your local Solargain Representative on **1300 73 93 55**.

Selecting Collector Location

Solargain collectors should be installed as close as possible to True North. If True North is not an option, the next most suitable direction is within 45 degrees either side of true north. If there is a necessity to install collectors in a direction outside the 45 degrees mentioned above, Solargain Hot Water systems will derive sufficient solar contribution to comply with government requirements provided the following conditions are observed:

-  • The direction of the collectors is no more than 90 degrees either side of True North.
- The pitch of the roof or surface upon which the collector are installed, is no greater than 40 degrees.

Solargain flat panel collectors must be installed at a minimum pitch of 10°. Solargain Evacuated Tube Collectors must be installed at a minimum pitch of 15°. For maximum performance the Solargain Collector is to be located in a position clear from shade all year round and free from obstructions.

Electrical Connections

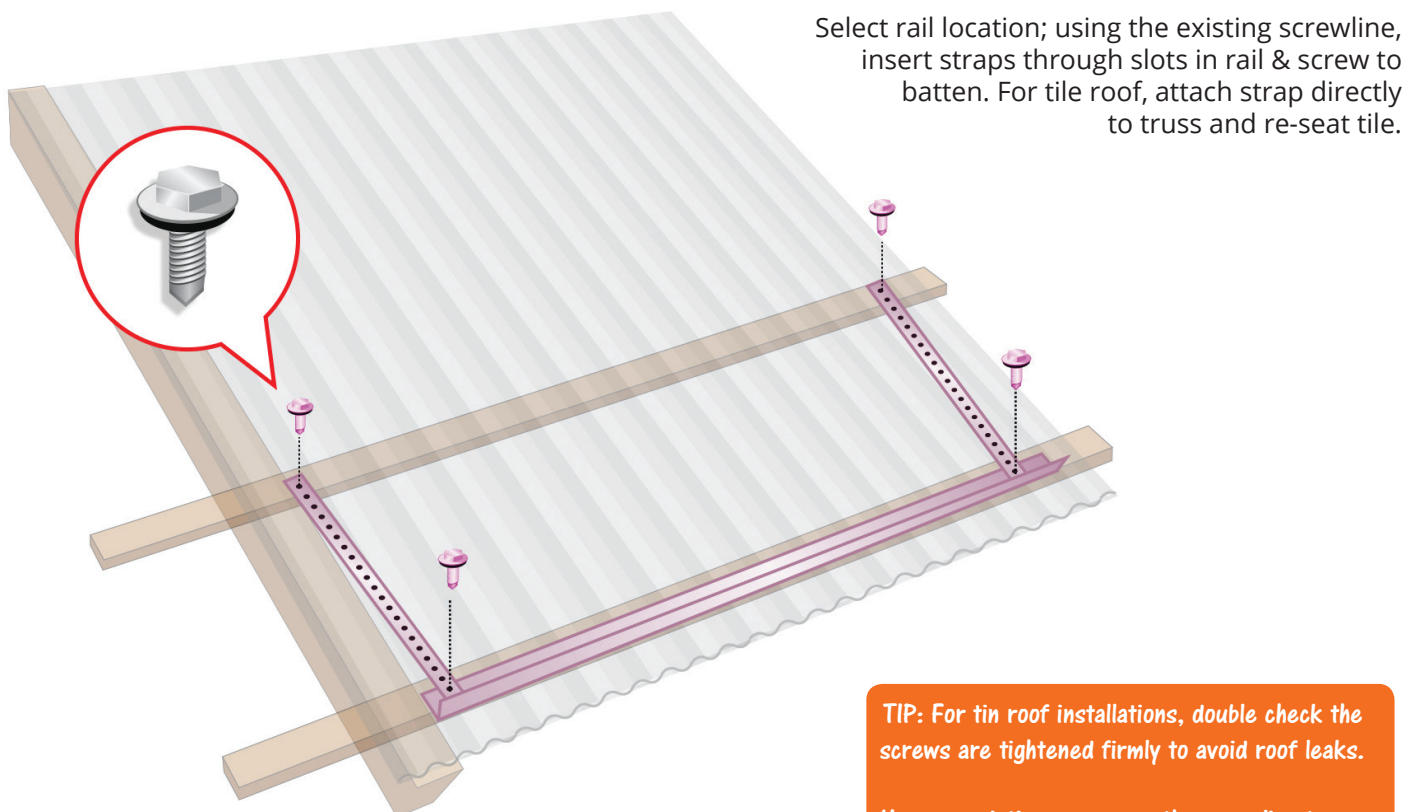
Local codes must be adhered to for all electrical work and be undertaken by a licenced electrician. All active open loop split systems require the element required for boosting to be wired separately to the general power outlet required for the pump.

INSTALLING THE FLAT PLATE COLLECTORS

After selecting the position of the tank and collectors (making sure they are generally no more than 15m apart), check the roof for broken or loose tiles and rusted or loose metal sheets and make good. Position the collector rail on the front edge of a tile or over a batten and with the straps supplied, fix them to/through the roof. Before lifting the collector/s onto the roof, we recommend you install all brass fittings to the collectors. Due to the high temperature generated.

Flat Panel Solar Collector Connections ONE/TWO Collectors

- Fit 22mm x 3/4FI inch union on the flow line inlet fitting (bottom of collector). Reference diagram page 7.
- Fit 22mm brass plug in opposite fitting on collector array (non frost areas). Reference diagram page 7.
- Fit 22mm x 3/4FI inch + 3/4 x 1/2 inch reducing hex nipple and frost valve in opposite fitting on collector array (frost areas)
- Fit 22mm x 3/4FI inch union on the hot water return outlet fitting (top of collector diagonally to cold)
- Fit 22mm brass plug into the opposite fitting on the collector array
- Using the 22mm brass barrel unions connect the collectors together (if more than 1 collector)
- In areas of frost, a frost protection valve will need to be connected to the collector array.
- The connection of the solar flow and return lines must be diagonal to each other with the flow in the bottom



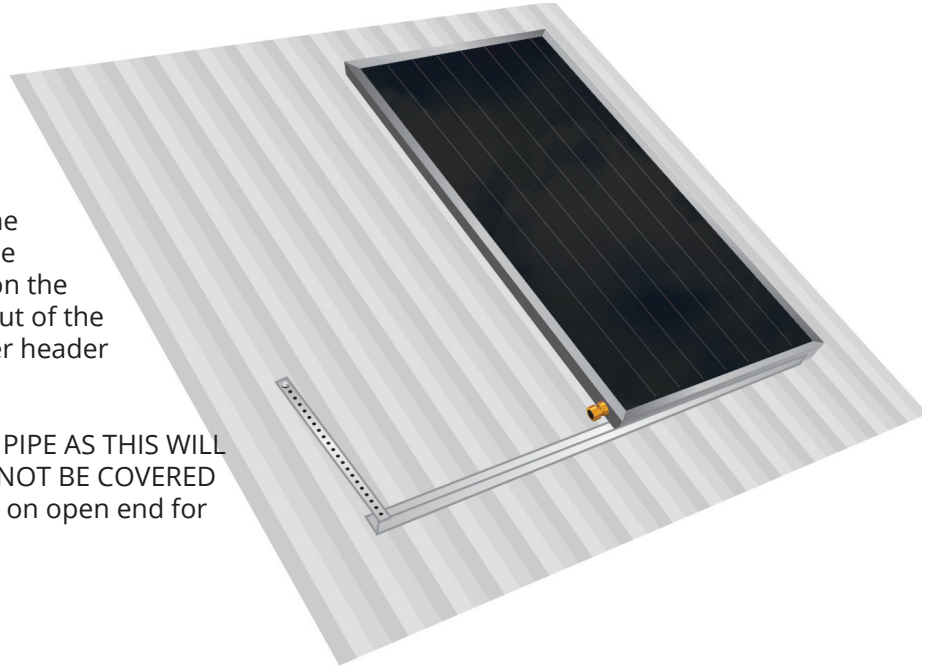
TIP: For tin roof installations, double check the screws are tightened firmly to avoid roof leaks.

Use pre existing screws on the screwline to fasten down straps.

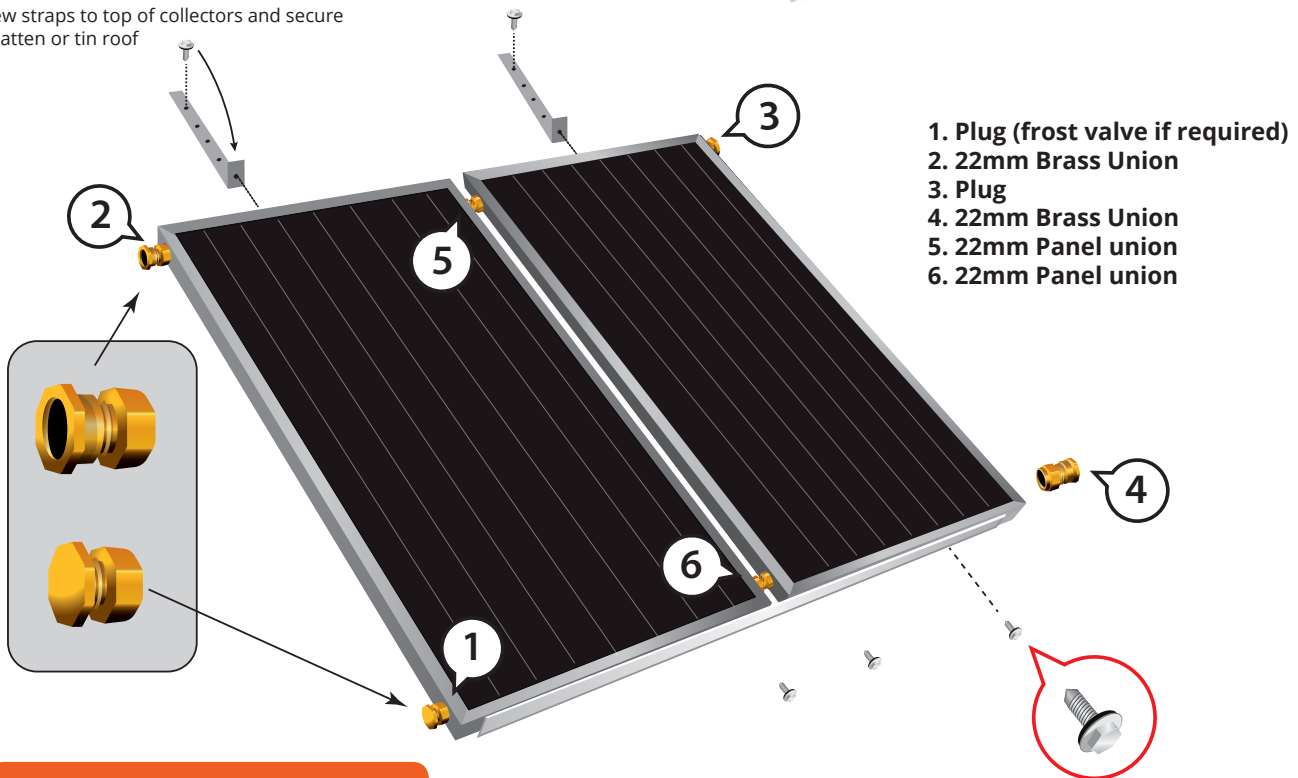
INSTALLING THE FLAT PLATE COLLECTORS CONT.

Place first panel onto rail and ensure bottom of panel is sitting flat on the rail. Ensure the 22mm panel unions are connected to the first panel. Using two shifters, one placed on the nut & one placed on the barrel of the union, tighten the nut of the 22mm union to the 22mm copper header pipe.

DO NOT TWIST COPPER HEADER PIPE AS THIS WILL CAUSE INTERNAL DAMAGE AND NOT BE COVERED BY WARRANTY. Leave nut & olive on open end for connection of the second panel.



screw straps to top of collectors and secure to batten or tin roof



1. Plug (frost valve if required)
2. 22mm Brass Union
3. Plug
4. 22mm Brass Union
5. 22mm Panel union
6. 22mm Panel union

TIP: flow and return can be reversed to suit installation requirements

Place second panel & ensure both panels are square. Then gently slide both panels together and ensure 22mm copper header pipe is fully inserted into the 22mm panel union. Once both bottom and top 22mm panel unions are fully inserted, using 2 shifters, place one shifter on the nut & one shifter on the barrel of the union and tighten the 22mm nut. **DO NOT TWIST COPPER HEADER PIPE AS THIS WILL CAUSE INTERNAL DAMAGE AND NOT BE COVERED BY WARRANTY.**

Align panels to centre of the aluminium bottom rail then screw the supplied 4 x Metal Self Tapping hex head screws into the 4 x pre-drilled holes in bottom rail.

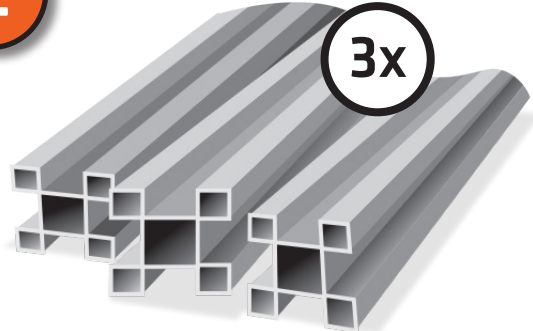
INSTALLING EVACUATED TUBES

1



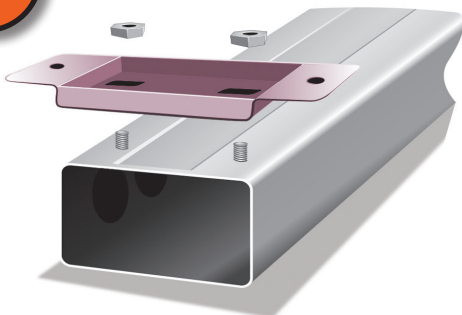
Unpack goods & separate. Locate manifold serial number on the top left side of manifold & write down serial number.

2



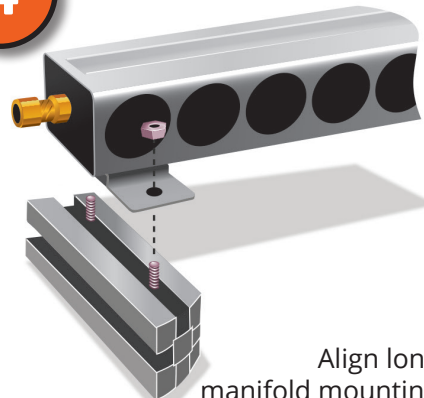
Select 3 long rails and place them on level ground.

3



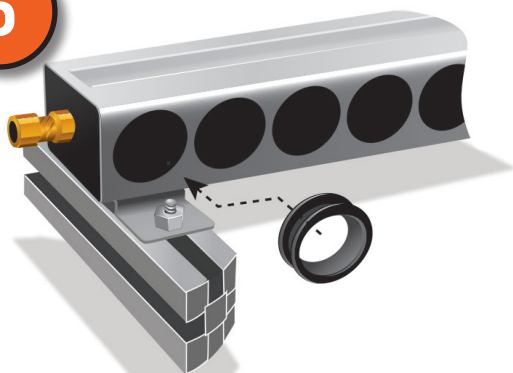
Locate manifold mounting bracket (x3) and attach to underneath of manifold. Tighten adequately with nuts.

4



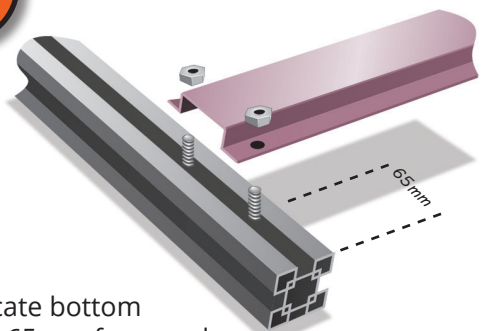
Align long rails with manifold mounting brackets. Insert 2 bolts in each rail and place into position. Ensure top of bracket is located at the end of the rail.

5



Insert the dust circles into the tube ports prior to moving to roof. Ensure dust circles are secure & not loose.

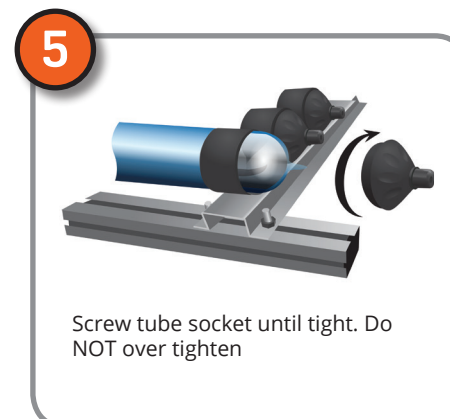
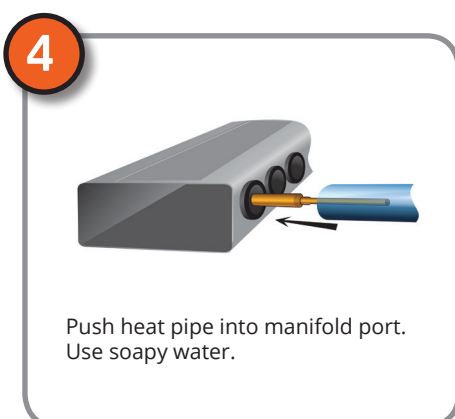
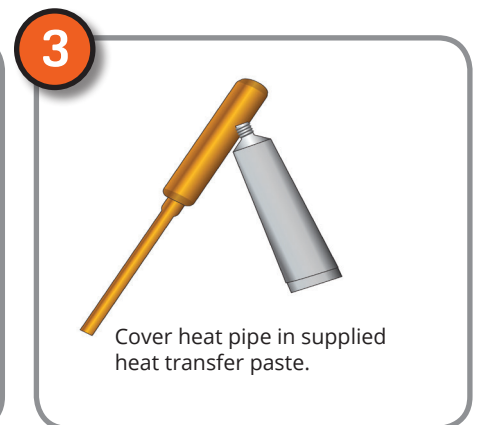
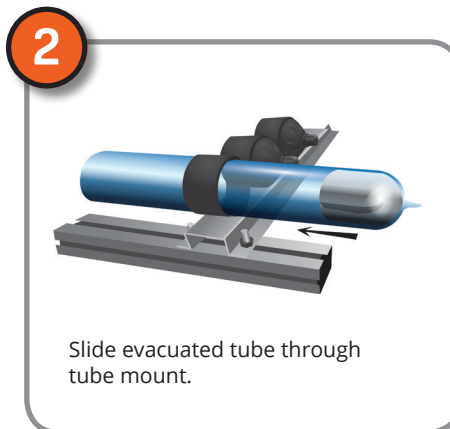
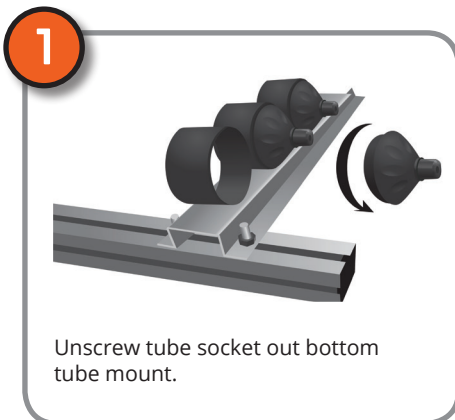
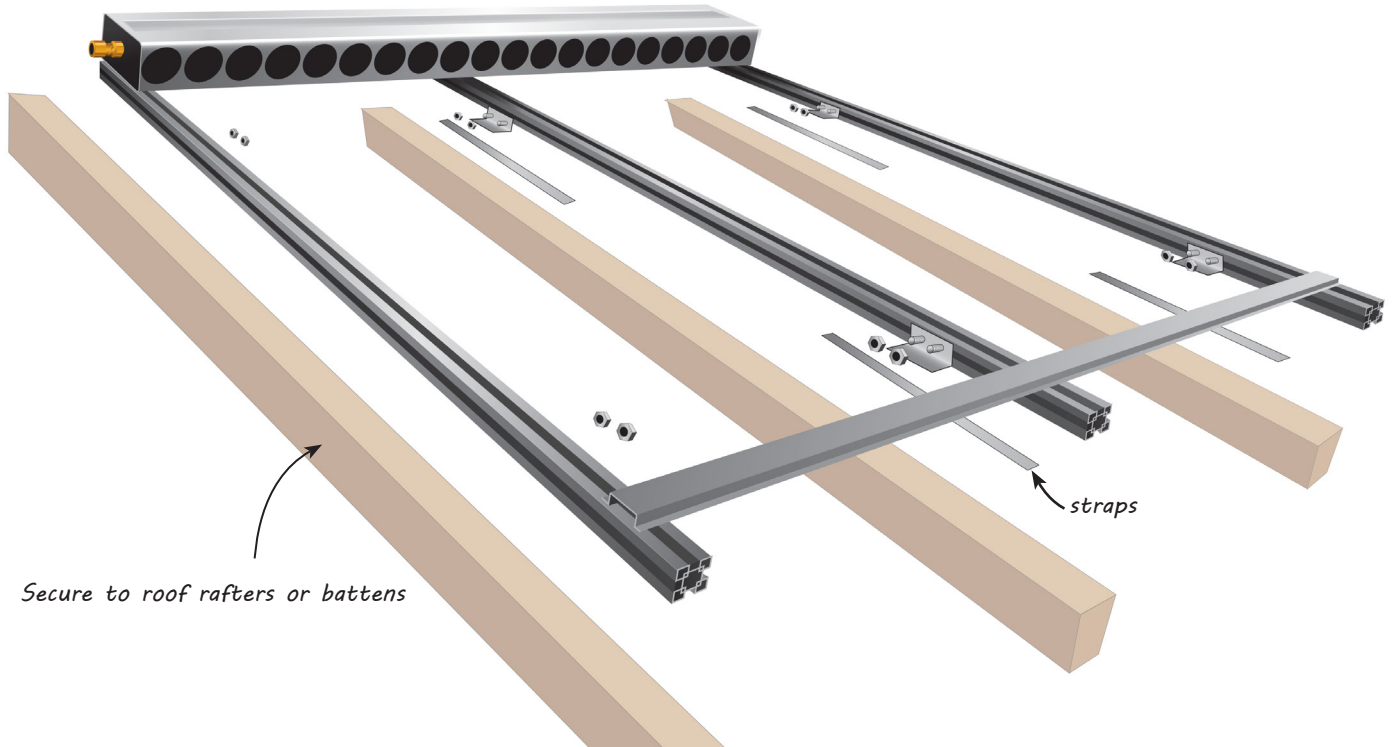
6



Locate bottom rail 65mm from end. Ensure the tube boots are facing the manifold. Insert 2 bolts into each rail & place into position.

INSTALLING EVACUATED TUBES CONT.

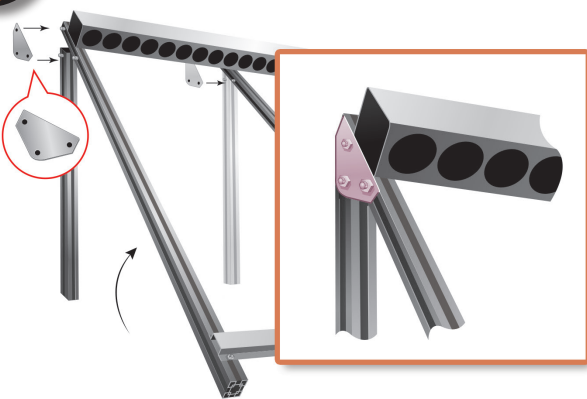
Slide 4 x bolts into the internal side of each rail for strap attachment. Make sure the strap attachments are located inside of the manifold. Each rail will have 2 x strap attachments. Place 4 x nuts on each rail and tighten loosely for transportation to roof area. Select roof location & kick back 6 x tiles for strap to be attached to truss. Tighten all nuts once strap is secured to truss.



OPTIONAL PITCHING FRAME ASSEMBLY



1



Stand the frame up and using the triangle piece, connect the back lengths of the frame at the top. These lengths are 1375mm long. There are three that sit vertically across the back.

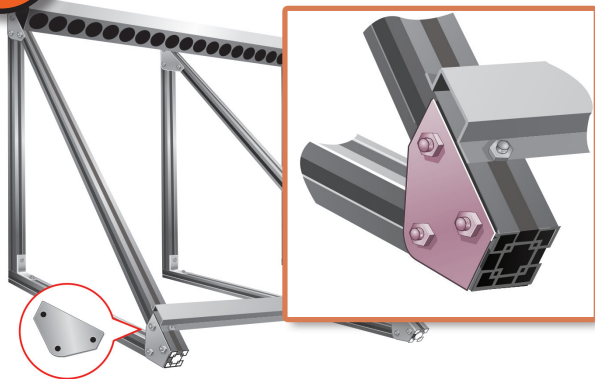
2



Next connect the "L" Brackets at the base of the vertical lengths to the horizontal lengths, which are 1335mm long - these will be sitting across the roof.

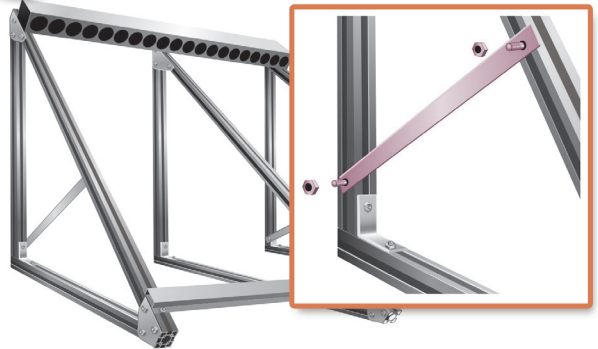
OPTIONAL PITCHING FRAME ASSEMBLY CONT.

3



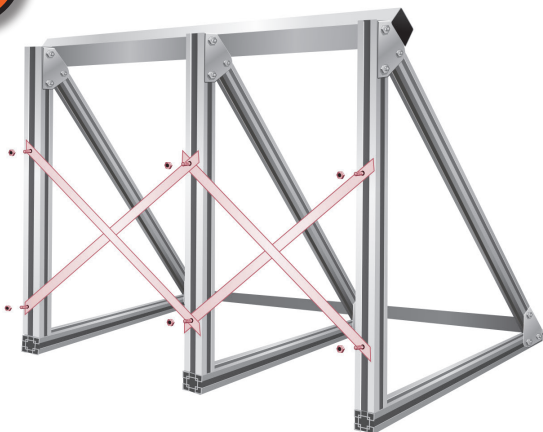
Next connect the triangle piece at the front of frame. Make sure the triangle bracket is on the outside of the frame. Repeat this across the three long lengths.

4



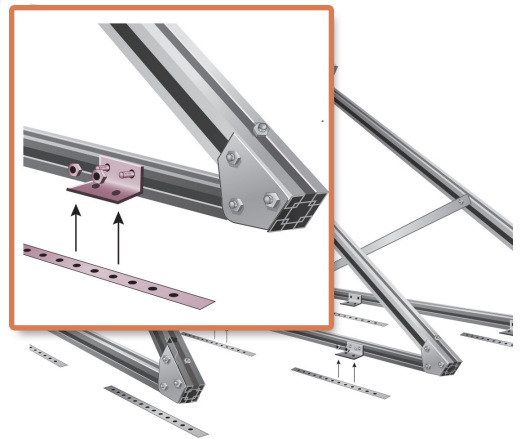
Take the short bracing piece and connect to the inside of the frame next to the "L" bracket and connect the other end to the long length of the frame, as shown in the diagram.

5



Take the long brace pieces and join to the back of the frame as shown. Once all components are in place, you may tighten with a socket set.

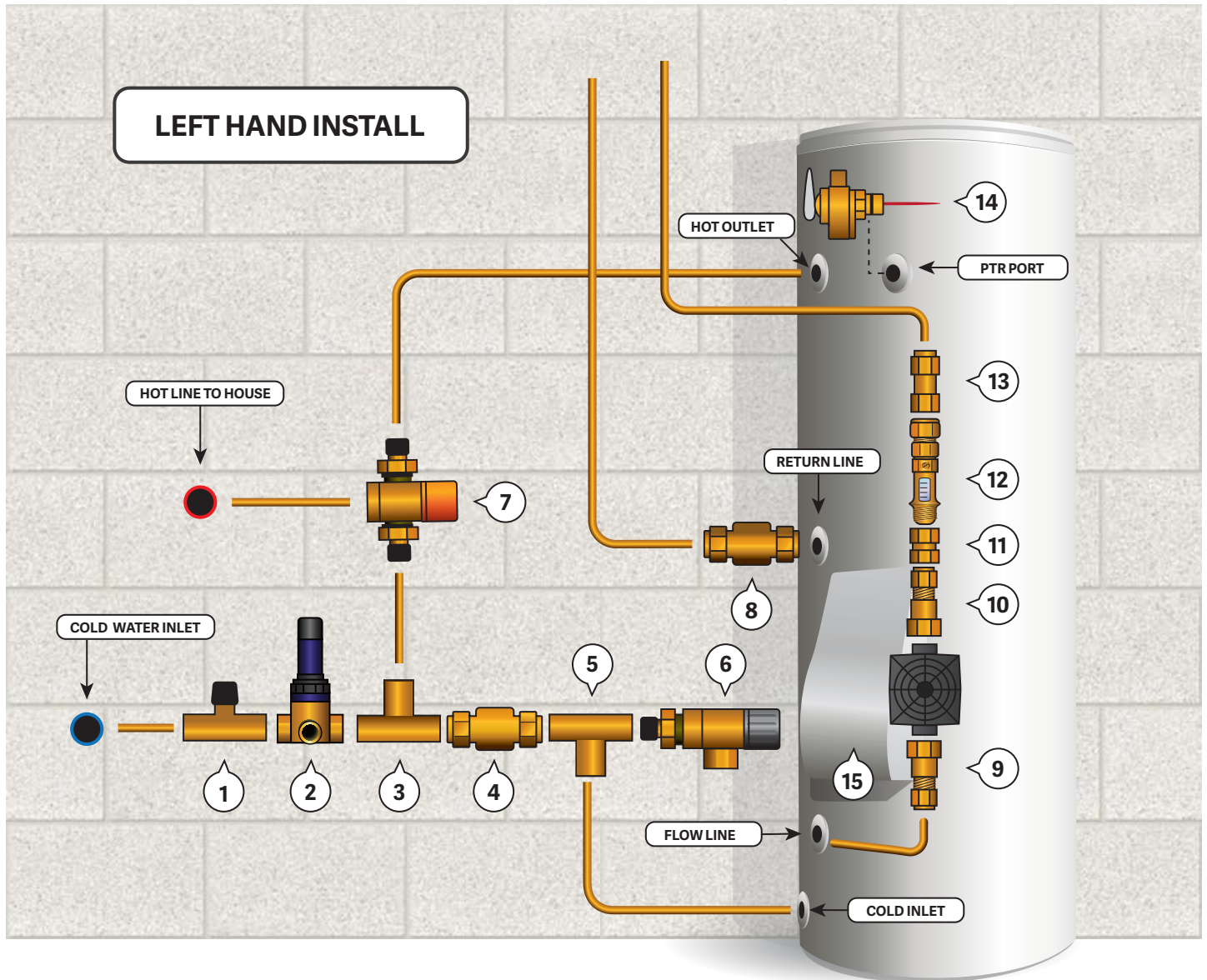
6



Connect the "L" brackets to inside of the horizontal lengths along the roof. Connect the straps to the "L" brackets as shown. Fasten straps to rafters or battens.

The straps are then ready to connect to the tile or tin roof. The long "L" bracket is adjustable to suit the roof screw or tile line. There are two on each length.

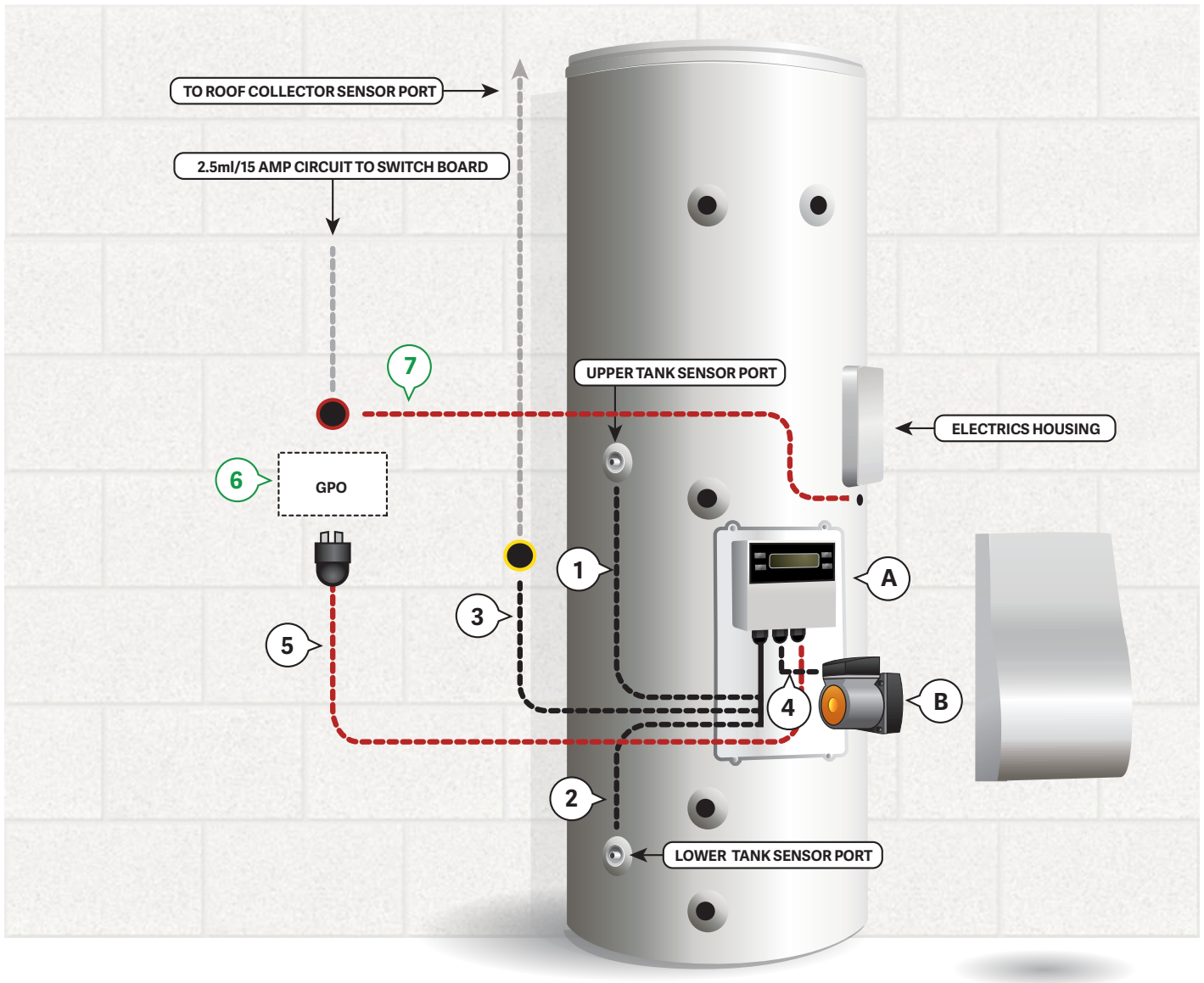
INSTALLING VALVES & FITTINGS




Valves and Fittings Index

1	Duo/NRI valve	9	Pump Union & Blue "O" Ring (supplied w/ pump station)
2	PRV 500kPa Pressure Reduction Valve	10	Pump Union & Blue "O" Ring (supplied w/ pump station)
3	15mm Brass Tee Piece	11	15mm brass socket (supplied with pump station)
4	Solar Non Return Check Valve (supplied w/ pump station)	12	Flow Metre (supplied w/ pump station)
5	15mm Brass Tee Piece	13	Non Return Check Valve (supplied w/ pump station)
6	ECV 700kPa Expansion Control Valve	14	PTR 850kPa Pressure Temperature Relief (supplied w/ tank)
7	High performance solar rated tempering valve	15	Pump Station Housing
8	Solar Non Return Check Valve (supplied w/ pump station)		

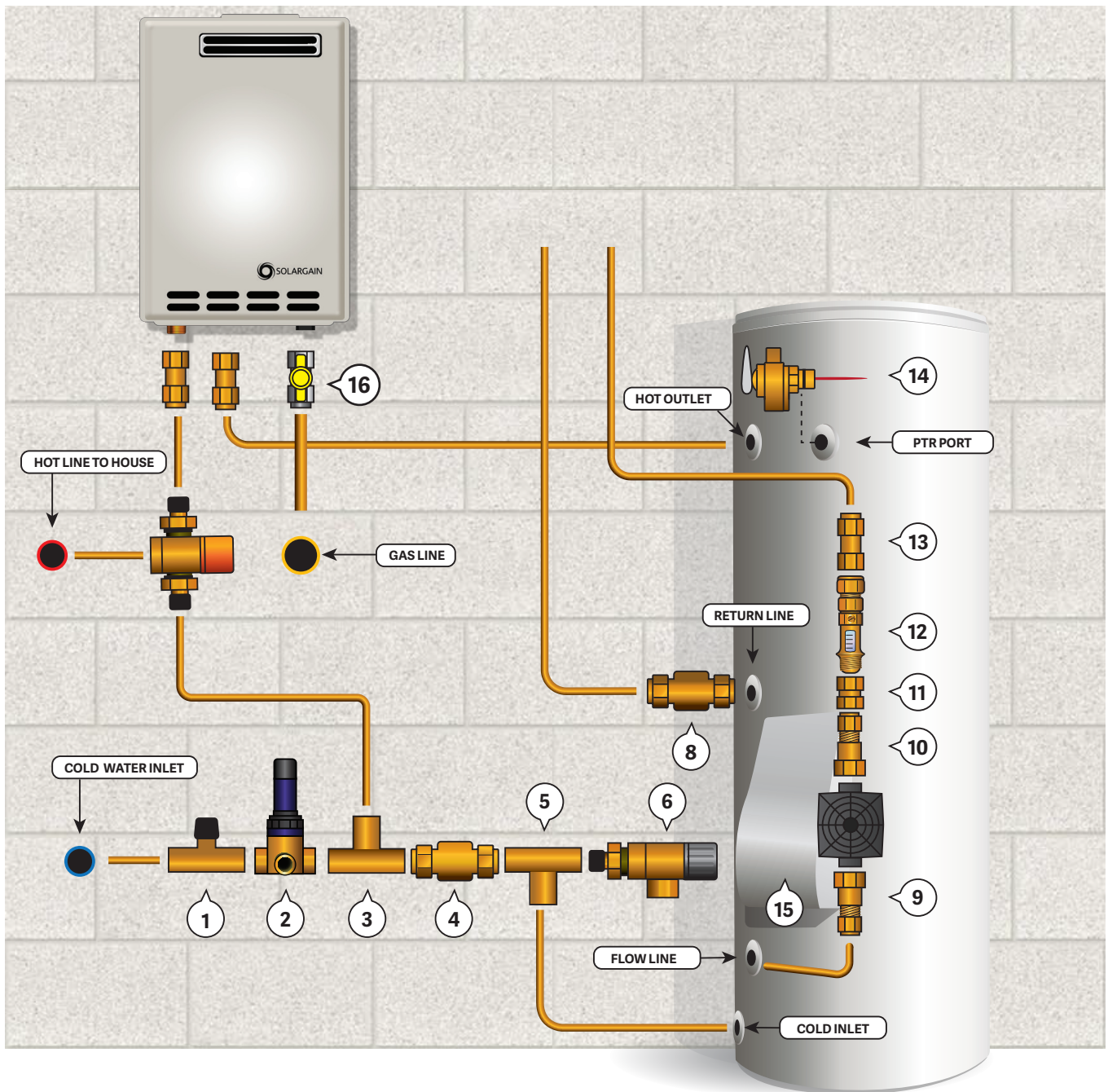
INSTALLING PUMP STATION AND ELECTRICS



Pump Station & Electrical Information

1	Insert upper tank sensor cable (labelled) to top sensor port on tank
2	Insert lower tank sensor cable (labelled) to bottom sensor port on tank
3	Clip roof collector sensor cable to cable on controller (labelled)
4	Plug pump power socket to controller socket
5	Plug controller power socket to GPO
6	Outdoor weather proof GPO (10amp circuit)
7	2.5ml/15amp dedicated circuit wired from main switch board to tank electrics panel
	WARNING: DO NOT TURN ON ELECTRICAL BOOSTER OR GPO SWITCH UNTIL TANK IS FILLED AND SYSTEM IS COMMISSIONED

TANK & GAS BOOSTER DIAGRAM



Valves and Fittings Index

1	Duo/NRI valve	9	Pump Union & Blue "O" Ring (supplied w/ pump station)
2	PRV 500kPa Pressure Reduction Valve	10	Pump Union & Blue "O" Ring (supplied w/ pump station)
3	15mm Brass Tee Piece	11	15mm brass socket (supplied with pump station)
4	Solar Non Return Check Valve (supplied w/ pump station)	12	Flow Metre (supplied w/ pump station)
5	15mm Brass Tee Piece	13	Non Return Check Valve (supplied w/ pump station)
6	ECV 700kPa Expansion Control Valve	14	PTR 850kPa Pressure Temperature Relief (supplied w/ tank)
7	High performance solar rated tempering valve	15	Pump Station Housing
8	Solar Non Return Check Valve (supplied w/ pump station)	16	Gas Cock

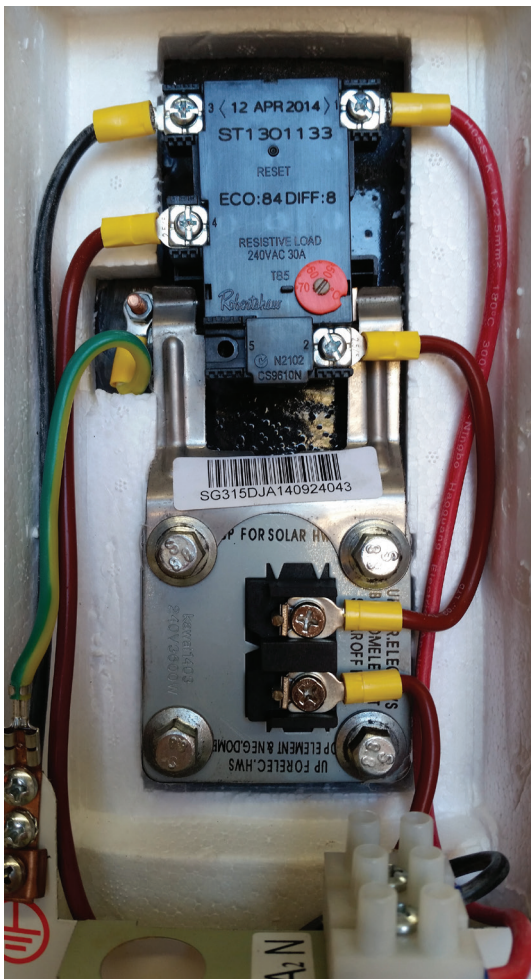
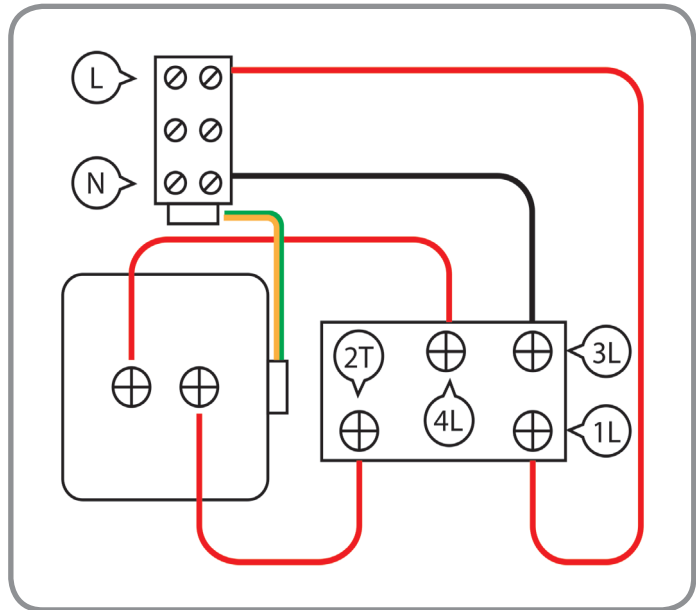
ELECTRICS WIRING DIAGRAM

DANGER

The operation of thermal cut-out indicates a possibly dangerous situation. DO NOT RESET thermal cut-out until it has been serviced by an authorised person.

WARNING

Do not operate this appliance without a thermostat and non self resetting and thermal cut-out within circuit.



SETTING UP THE INTELLIGENT CONTROLLER

Read carefully before operating

The S1000 controller is differential controller specifically designed for forced circulation solar systems. It incorporates a microprocessor driven PCB board and a set of highly engineered thermal sensors. The roof sensor is capable of operating under extremely high temperatures.

The controller is user programmable with an access code and features intelligent self-troubleshooting functions. Only authorized installers and technicians have access to the access code for reprogramming.

The circulation pump is activated when the roof sensor temperature reaches a predetermined temperature higher than that of the lower tank sensor port. The circulated water is then heated by the solar energy and then stored in the tank.

An anti-freeze function is available when the roof temperature falls below a predetermined figure. A small amount of water is circulated to the roof and effectively prevents frost damage.

A manual pump operation is featured to allow user to temporarily turn on and off the devices by overriding the preset logic. However, the controller returns to auto mode after 2 hours in manual operation.

Each controller includes a built in self-diagnosis detection and runs error checks continuously. An error message will indicate the specific damaged sensor wire that needs replacing. A indicator lights on LCD will flash to alarm the users.

The controller is pre - assembled inside the specially designed & weather-proof Pump Station. The pump station can be mounted on the storage tank or located on a nearby wall inside 1.5m from storage tank. Do not run sensor cables parallel to mains power cable and any additional wiring shall be coiled and shortened by qualified electricians.



SETTING UP THE INTELLIGENT CONTROLLER CONT.

This controller appliance is pre-wired with temperature sensor wires, power supply wire and output wires. During installation, the power supply cord must not be allowed to connect with the main electricity supply, until the controller is securely in place and with all output connections already connected.

The controller has the following settings programmed and shall not be altered unless authorised by the manufacturer. Any un-authorised changes in settings will result in immediate void of warranty.

Circulation pump differential control - The circulation pump will only be activated when there is sufficient solar energy present on the roof to contribute to the in the water cylinder. This is achieved by sensing the temperature difference between the roof collector and inlet water temperature. The water circulation will cease when the below temperature differentials are achieved.

“Pump Differential On Temp”: 8°C “Pump Differential Off Temp”: 2°C

Top out protection - In good solar conditions, the solar collector could harvest the solar energy extremely sufficiently and quickly raise the storage water cylinder temperature. The storage water cylinder internal lining may be damaged by the high temperature water, which can exceed the designed operating temperature range by the tank manufacturer. The top out function prevents the water cylinder reaching dangerously high temperatures by stopping the pump circulation to the collector, so that the water is not heated further.

“Top Out Temp”: 75°C

“Top Out Reset Temp”: 73°C

Anti-freeze protection - In frost conditions, the risers in flat plate collector or heat exchangers in evacuated tube collector may freeze. The Anti-freeze protection mode protects the collector by sensing the roof temperature & will active a small amount of water circulation when the below temperatures are achieved.

“Anti-freeze on Temp”: 3°C “Anti-freeze off Temp”: 5°C

Manual pump function - During the commissioning / servicing of a solar hot water system, a manual pump override may be needed to assist with bleeding the air from the solar loop. Push the “manual pump” button and the controller will enter a manual mode. In this mode, the pump will activate overriding disregarding other control functions. The manual pump mode can be turned off by pressing the “manual pump” button again and the controller re-enters the automatic mode.

In case that the user forgets to exit manual mode, the controller will automatically re-engage automatic mode after a maximum of 2 hours.

SETTING UP THE INTELLIGENT CONTROLLER CONT.

Auto cavitation recovery - Where there is a drop of water pressure, air bubbles may form and become trapped inside the circulation pump chamber. This could cause cavitation of the pump, resulting in no water circulation. When the pump has continued working non-stop for 2 hours (a sign of cavitation forming), the auto cavitation recovery function will turn off the pump for 2 minutes and allow the air bubble to escape. When the pump is re-engaged, the cavitation should be recovered in most situations.



Controller Display

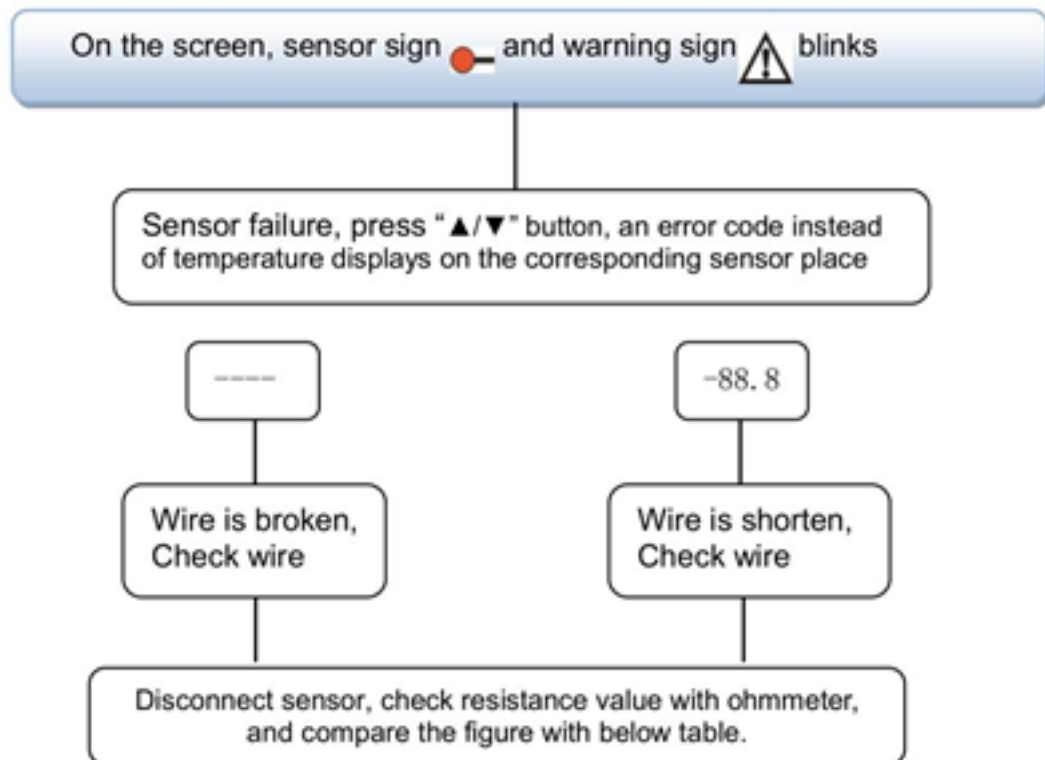
The controller is preset in automatic mode. The screen will display system graph visualization. This reading is live and will vary with every installation.

ERROR MESSAGES AND TROUBLESHOOTING

Faulty sensor indications

The built-in controller is a qualified product, which is conceived for years of continuous trouble-free operation. If problems occur, it is likely to be the peripheral components and seldom the controller itself. The following description of some well-known problems should help the installer and operator to isolate the problem, unnecessary cost. Of course, not all possible problems can be listed here. However, most of the normal problems encountered with the controller can be found in the list below, only return the controller to seller when you are absolutely sure that none of the problems listed below is responsible for the fault.

SETTING UP THE INTELLIGENT CONTROLLER CONT.



Manual pump not working

Troubleshoot: Check the upper tank temperature first by reading the controller screen. If the top out temperature has been reached, the controller will not allow the pump to operate.

The screen is blacked out

Ensure power supply is available to the controller. Test the power-point with another approved 3 Pin Plug In appliance. Check the safety switch has not tripped. Contact your supplier if problem persists. Do not open controller under any circumstances.

GENERAL INSTALLATION INFORMATION

Hot and Cold Water Connections

All plumbing connections must be performed by a licensed plumber in accordance with local authority regulations.

Cold Water Connection

The cold water inlet connection to the solar storage tank is 3/4 FI. All pipes and valves must be insulated as per the current AS/NZ 3500.4 Section 8.2. The cold water inlet requires the following valve train - please refer to system diagram page for correct installation

- Approved isolating/non return valve
- 500 kPa Pressure Reduction Valve (PRV) valve
- 700 kPa Expansion Control Valve (ECV) if required by local or state authority
- Solar Rated Check Valve (Supplied with Pump Station)
-

Hot Water Connection

The hot water outlet from the solar tank is 3/4 inch FI. All hot water pipes must be insulated by UV stable & appropriately rated insulation.

Solar Tank Connections Positioning

The solar tank will need to be positioned on an approved base i.e. a concrete plinth and as close as possible to the most used outlet or the gas booster if used. A maximum distance of 15m from collector to tank is recommended. Distances greater than this will require the installation of a larger solar pump - contact your supplier if the installation requires a pump upgrade.

Pump Station Installation

- The pump station shall be fixed to the storage tank or the wall within 1.5m of the solar flow port on tank.
- Fix backing plate of pump station to either the tank or wall ensuring the backing plate is level.
- Place pump in housing & clip on the pump station cover (this will hold the pump in place).
- Connect pump unions to pump, connect the supplied flow meter to check valve on the outlet of pump.
- Insert sensor 1 into sensor 1 port. Install sensor 2 into sensor 2 port.

GENERAL INSTALLATION INFORMATION

- Connect the collector sensor wire to the fitting provided on the bottom of the controller.
- Plug the pump into the power outlet under the controller.
- Plug the controller into the GPO - DO NOT SWITCH ON UNTIL COMPLETING COMMISSIONING PROCEDURE BELOW

Solar Flow and Return Lines

Run the solar flow and return lines from collector/s to tank using solar rated insulated copper with gradual fall to the storage tank. Approved flashing must be used when penetrating the roof.

WARNING - under no circumstances should plastic piping be used. The flow rate shall be set to 1L/min with the flow meter supplied.



Filling and commissioning the solar system

1. Turn on the cold water supply to the tank and open a hot water tap.
2. Wait until water starts to come out of the hot water tap then turn off the hot water tap.
3. Turn on the solar controller & re-open hot water tap.
4. Leave water running until all air is bled, then turn off the hot water tap.
5. Switch on the power to the booster, circuit breaker for electric boost / GPO for gas boost.
6. Check controller to ensure roof temperature is reducing - this indicated the pump is running & solar contribution is present.
7. Check all hot water taps in home to ensure no outlets became blocked during commission procedure.

PRESSURE & RELIEF VALVE

The Solargain Hot Water system is fitted with an 850kPa PTR Valve, which is located on the side of the cylinder and is essential for its safe operation. It is important that you operate the easing knob or lift the lever on the PTR valve once every 6 months. It is important you rotate the knob or lever gently so seat is not damaged.

Hot Water tanks

The five yearly service should be carried out by a licensed tradesperson. It is recommended that this service be carried out by your local Solargain agent. The service should include the following:

1. Replace the Pressure & temperature relief valve
2. Replace the anode (anodes should be replaced more frequently if subjected to hard water conditions, refer table in the warranty exclusions.
3. Flush the water heater

Cleaning

Regular rain should keep the collector clean, but if particularly dirty then may be washed with a soft cloth and warm soapy water or glass cleaning solution. If the collector is not easily and safely accessible, high pressure water spray is also effective.

Leaves

During autumn, leaves may accumulate between or beneath the Collector. Please remove these leaves regularly to ensure optimal performance and to prevent a fire hazard. Note: The solar collector will not cause the ignition of flammable materials.

Insulation

The Plumbing pipes running to and from the collector should be heavily insulated. This insulation foam should be checked annually for damage. Solar rated, UV stable insulation must be used on all Solargain installations.

Note: Up to 60% heat loss can occur if the insulation is non existent or sub standard. Therefore please pay particular attention to making sure the system is properly insulated and any external insulation is UV Protected.

TROUBLE SHOOTING

PROBLEM	SOURCE	SOLUTION
Water not as hot as previous hot water system	Tempering Valve installed	A tempering valve must be installed on every solar hot water system. Tempering valves will mix water down to 50°C.
No Hot Water	Electric or gas booster is not turned on or not configured correctly	Electric booster should be set to at least 60°C. Ensure circuit breaker is switched on. Ensure power is switched on to gas booster. Ensure mains gas supply hasn't been isolated.
Overflow pipe is dripping	Pressure Temperature Relief Valve (PTR) / Expansion Control Valve (ECV) where applicable.	An 850kPa and 99°C PTR valve is used on the Solargain water tank, which is located on the side of the water tank and is essential for its safe operation. The PTR valve is designed to allow 3-5% of total tank volume to discharge during heating to allow for hot water expansion.
Water pressure is slightly lower than previous hot water system	Pressure Reduction Valve (PRV)	A pressure reduction valve has been installed to limit the inlet pressure to your new Solargain Water Heater. This device regulates the incoming pressure & increases life of the cylinder. This device will also protect your cylinder if the mains pressure is increased by the local water authority.

After Sales Service Guaranteed

Solargain pride ourselves in responsive after sales service, If the system is still not operating correctly, call your local Solargain supplier for further advice. Under no circumstances should repairs be attempted by unqualified persons.

Thank you for joining Solargain in our mission to leading the way to a sustainable energy future.

Supplier Name: _____ Installation Date: _____

Supplier Address: _____ Supplier Phone: _____

System Model / Type: _____