



# Owner's Manual

***sunpro***<sup>®</sup>

## **Electric Boosted Solar Water Heater**

Models:    2F136S    3F136S    4F136S  
              2F136SD    3F136SD    4F136SD

Installation Details

Owner's Information

Warranty

For advice, repairs and service, call:

1300 365 115 (Australia)

0800 729 389 (New Zealand)



Carefully remove all packaging and transit protection from the heater before installation. Dispose of the packaging responsibly using re-cycling facilities where they exist.

Specifications and materials may change without notice.

Effective for Dux electric boosted solar water heaters manufactured and sold after 1 January 2012.



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Owner's Manual – Dux Electric Boosted Solar

## Welcome To Dux Hot Water

Your decision to purchase a Dux Hot Water system will reward you for many years to come.

Since 1915, the Dux range has seen continuous research and development, resulting in many breakthroughs in the efficiency, reliability and longevity of hot water systems.

Dux water heaters are manufactured in Australia in a state-of-the-art facility, using a Quality Endorsed Company production system.

This is your assurance that you have purchased the highest quality water heater available, one that will provide continuous hot water for all your needs – safely, economically, and for many years to come.

To be upfront about it, we want Dux to be your brand of choice. So you can depend on us to provide more than just a hot water system.

You can rely on Dux products and choose them with confidence. We'll make sure you have the information, the quality and the innovation you're looking for, including the latest energy-saving alternatives. If you should ever have a problem – and we'll bet you won't – you'll find that we're easy to get hold of, friendly to talk to and quick to act. Our service is all about providing anything you need as soon as you need it.

Go with Dux and you'll have a dependable, economical, efficient hot water system designed to perform well, year after year. And that's a promise.





# Owner's Manual – Dux Electric Boosted Solar Installation of the Tank

## Installer's Guide

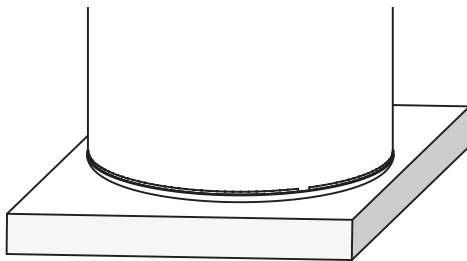
Full and detailed installation instructions are in the *Installer's Guide*, included inside the water heater's carton.

## Location

The water heater should be located as close as possible to the most frequently used hot water outlet. Ensure that the data plate is clearly visible and provide adequate access for service to the thermostat, relief valve and anode.

**Note:** All models are equipped with a sacrificial anode, accessible through the top cover. Allow 50% of the height of the water heater for clearance above to replace the anode.

**We recommend a plinth be installed under the water heater where the water heater is subjected to wet conditions**



A properly drained overflow tray must be used where property damage could occur from water spillage. (See AS/NZS3500.4 for further details.)

**Note:** Warranty does not cover consequential damage due to heater leakage.

## Safety

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 instruction concerning use of the appliance by a person responsible for their safety.

Children and animals should be supervised to ensure that they do not interfere with the appliance.

## Model Numbers

Below is a list of model numbers and their descriptions:

Tank Model	Description
2F136S	250 Litre tank
2F136SD	250 Litre tank with Panel Management
3F136S	315 Litre tank
3F136SD	315 Litre tank with Panel Management
4F136S	400 Litre tank
4F136SD	400 Litre tank with Panel Management



# Owner's Manual – Dux Electric Boosted Solar Installation of the Tank

## Frost Protection

Consult the table right to determine if your system needs an anti-frost valve.

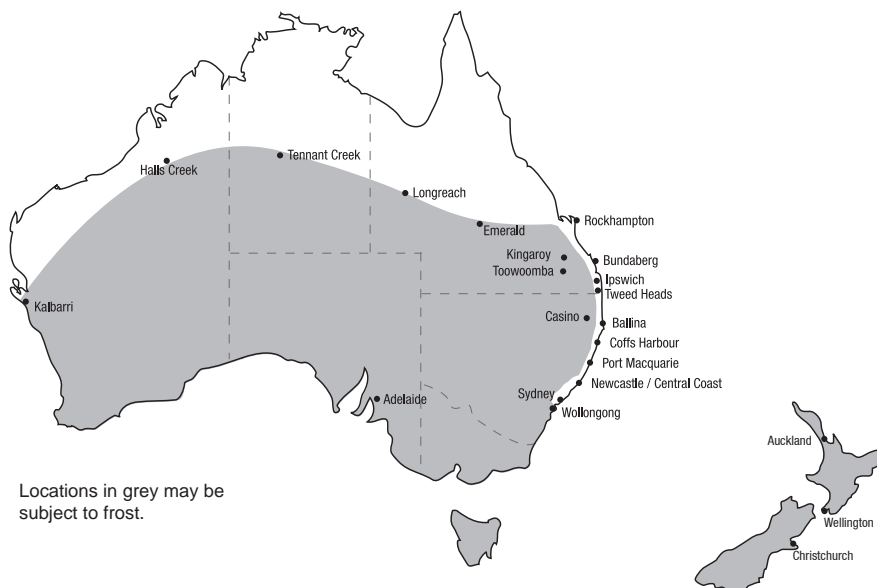
If your model does require frost protection, you **must** install an anti-frost valve.

However, **TWO** anti-frost valves must be installed if you live in alpine areas or areas subject to extreme frost, such as the ACT and Snowy Mountain regions.

The anti-frost valve comes in kit form and must be ordered seperately.

Tank Model	Anti-Frost Valve Needed?
2F136S	Yes
2F136SD	No
3F136S	Yes
3F136SD	No
4F136S	Yes
4F136SD	No

## Frost Protection Installation Map





# Owner's Manual – Dux Electric Boosted Solar Plumbing Connections

## Installation Requirements

This water heater must be installed by a licensed tradesperson, and in accordance with:

- AS/NZS3500.4 “National Plumbing and Drainage Code Hot Water Supply Systems – Acceptable Solutions”.
- Clause G12 of the New Zealand building code.
- Local authority regulations.
- Outside Australia and New Zealand, please refer to local plumbing and building codes and regulations.
- Notice to Victorian customers from the Victorian Plumbing Industry Commission – this water heater must be installed by a licensed person as required by the *Victorian Building Act* (1993). Only a licensed person will give you a compliance certificate, showing that the work complies with all the relevant Standards and only a licensed person will have insurance protecting their workmanship for 6 years.

## Water Supply Pressure

This water heater is designed for direct connection to water supply pressures of no greater than:

### All Models – 800kPa

Where the mains pressure can exceed or fluctuate beyond the pressure shown

above, a pressure limiting device (complying with AS1357) must be fitted in the cold water inlet supply. This device must be installed after the isolating valve and set below the pressure shown above. Note during periods of lower demand water pressure may increase.

## Pool Heating

This water heater must **not** be used for pool heating.

## Pressure & Temperature Relief Valve

The Pressure & Temperature Relief Valve is supplied loose with the water heater. The valve rating is:

### All Models – 1000kPa

The PTR valve must be installed directly into the top socket marked “RELIEF VALVE”. The drain line from this valve must run in a continuously downward direction in a frost-free ambient position with the discharge end left open to atmosphere permanently.

The PTR Valve is not intended to enable connection of the water heater to supplementary energy sources such as solar panels or slow combustion stoves (refer AS/NZS 3500.4 for guidance on these types of installations).

Open the PTR Valve for approximately 10 seconds by lifting the lever on the valve to ensure water is relieved to waste through the relief drain pipe. Lower lever gently and check that it closes correctly.



## Plumbing Connections

The PTR Valve must not be tampered with or removed. The water heater must not be operated unless this valve is fitted and in working order.

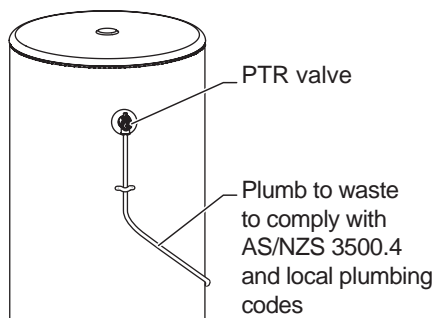
The PTR Valve should be checked for adequate performance or replaced at intervals not exceeding 5 years, or less in areas where local regulations apply.

**Important:** The PTR Valve and its drain outlet pipe must not be sealed or blocked. It is normal for the PTR valve to leak a small amount of water during heating cycles.

### Danger

Failure to operate the relief valve easing lever at least once every six (6) months may result in a problem with the water heater and in some cases the tank may explode.

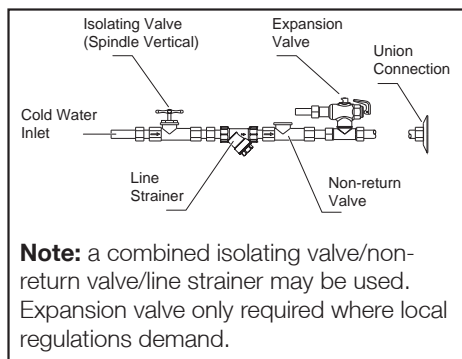
**Warning:** A separate drain line must be run for this relief valve. It is not permitted to couple drain lines from relief valves into a single common drain line.



### Cold Water Connection

An approved isolating valve, non return valve, line strainer (optional but recommended), and union must be fitted between the supply main and the RP $\frac{3}{4}$ "/20mm T fitting connected to the socket in the water heater.

All fittings must be approved by the relevant Authority and in accordance to the plumbing code.



**Note:** a combined isolating valve/non-return valve/line strainer may be used. Expansion valve only required where local regulations demand.

**Note for S.A. and W.A.:** It is a state requirement that a pressure relief valve be fitted on the cold water supply line between the non return valve and the water heater.



## Owner's Manual – Dux Electric Boosted Solar Plumbing Connections

### Hot Water Connection

The hot water line should be connected to the “OUTLET” socket on the tank.

**Note:** Once all connections have been properly made, fill tank by opening the cold water inlet and bleed all lines according to appropriate plumbing code.

### Safety Information

For safe performance this water heater is fitted with:

- an over-temperature energy cut-out thermostat
- a combination Pressure & Temperature Relief Valve.

These devices must not be tampered with or removed. The water heater must not be operated unless both of these devices are fitted and in working order.

The element cover should be removed only by a qualified electrician. The electrical power supply must be isolated at the main electrical supply switchboard before the water heater electrical cover is removed.

### Insulation of Pipes

All hot water pipes **must** be insulated with UV stabilized insulation suitable for solar working temperatures, e.g. Armaflex Insulation. Please check local regulations regarding the use of hot water supply pipework other than pipes made of copper.

### Building Flow & Return

Never install a building circulated flow and return line to the inlet connection of a Dux Electric solar or Gas solar hot water heater.

The solar water heater is not designed to be installed on a circulated flow and return line due to loss of thermal efficiency. Extensive pipe work will cause efficiency losses gained from solar energy and will increase energy consumption.

If a flow and return line is required, we recommend that you install a backup storage or continuous flow water heater on the flow and return line and a time control the building circulation loop to help reduce energy usage.





## Plumbing Connections

### Temperature Protection

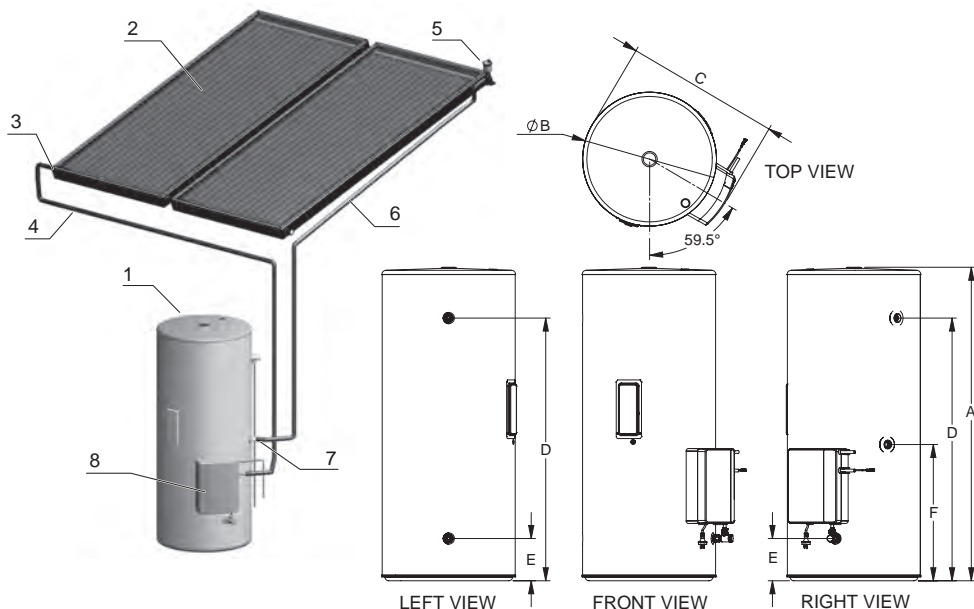
All solar water heaters have the ability to produce hot water very quickly. To reduce the risk of scald injury, it is mandatory under the requirements of Australian Standard AS/NZS3500.4:2003 that a suitably approved temperature control device be fitted to the hot water supply to outlets used primarily for personal hygiene. This valve should be checked at regular intervals to ensure its operation and settings remain correct.

**Note:** This water heater is supplied with a tempering valve. Install the valve according to the manufacturer's recommendations. Any adjustments to the valve should be made according to the manufacturer's recommendations.

The tempering valve should be checked at regular intervals to ensure its operation and settings remain correct.



# Owner's Manual – Dux Electric Boosted Solar Specifications



System Components	
Item Number	Description
1	Solar electric tank assembly
2	Solar collector
3	Solar collector flow connection
4	Solar collector flow pipe
5	Automatic air vent valve
6	Solar collector return pipe
7	Non return valve
8	Solar module

Dimensions (mm)	250L	315L	400L
Tank Height (A)	1444	1754	1704
Tank Diameter (B)	617	617	705
Tank Width (C)	712	712	801
Outlet (D)	1211	1521	1445
Inlet (E)	195	195	219
Solar Return (F)	628	838	642

Specifications	250L	315L	400L
Storage Capacity (L)	259	324	416
Hot Water Delivery (L)	250	315	400
Net Weight Empty (kg)	81	94	114
Relief Valve Pressure (kPa)	1000	1000	1000



## Installation of Collectors

### Installer's Guide

Full installation instructions for the collectors are in the *Installer's Guide*, included inside the water heater's carton.

### Safety

Do not commence an installation until you have satisfied yourself that all safety issues associated with working on and lifting components onto a roof have been addressed.

### Local Authority Regulations

All work associated with the installation must comply with local authority regulations, including AS/NZS 3500.4.

Where these installation instructions and local regulations are in conflict, local regulations must prevail.

The Plumbing Regulations 2008 for Victoria will be met by installing Dux Solar Collectors as per orientation B on the Collector Compass on page 10.

### Location of Collectors

There are several factors to consider in selecting the collector location site:

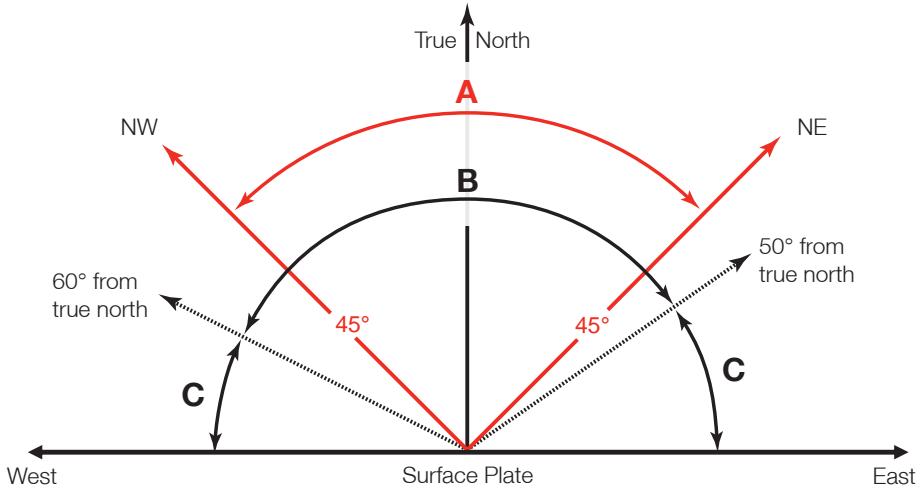
- For best performance, the collectors need to face true north. Due to the high solar energy levels experienced in Australia, installations on angles of up to 45° away from true north should not have a major effect on the annual solar output. Consequently, **installations up to 45° away from true north are acceptable**. See Collector Orientation Compass on page 10.
- If the collectors are installed with an east facing bias, the best solar input is achieved in the morning and if there is a west facing bias, the best solar input is in the afternoon.
- The collectors should be installed with a **minimum inclination of 10° and a maximum inclination of 45°**. See Collector Inclination Guide on page 10.
- Careful site inspection is required to ensure the selected location is not subjected to shading from adjacent trees or buildings at any time of the day, but particularly between **9am and 3pm, the highest solar input times**.
- Remember that shadows are longer in winter than in summer, so a site that is free of shadows from adjacent objects in summer may have some shadows in winter.
- To optimise efficiency, the collectors should be as close as possible to the storage tank.
- For best performance, the collectors should be located no more than 20m from the storage tank.
- Ensure that the roof structure is suitable to support the weight of the collectors. The collectors weigh approximately **40kg** each when full.



# Owner's Manual – Dux Electric Boosted Solar

## Installation of Collectors

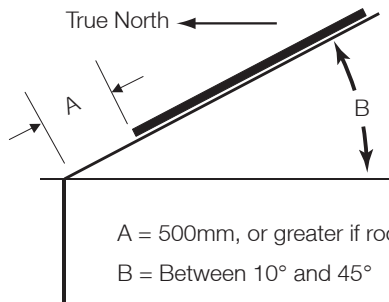
### Collector Orientation Compass



- A. Dux Preferred range
- B. Complies with the Victorian Plumbing regulations when installed with two panels
- C.1. If A and B are not practical, an additional collector can be installed at the home owner's discretion in range C.
- C.2. Complies with the Victorian Plumbing regulations when installed with three panels.

**Note:** When establishing the correct Collector Orientation, please account for the Magnetic Declination of your geographic location

### Collector Inclination Guide





## Installation of Collectors

### Collector Rail Kit

The Collector Rail Kit that comes with this water heater is designed for mounting the collectors to most common Australian roof types.

All kits consist of specially designed rails, clamps and bolts etc. that are used to fix the collectors to the roof structure. With the exception of the copper tube and roofing bolts, these kits contain all of the plumbing components required to connect the collectors to the ground mounted water heater.

Refer to the collector rail kit instructions located in the rail kit box. The rail kit instructions can also be obtained from Dux Service on 1300 365 115.

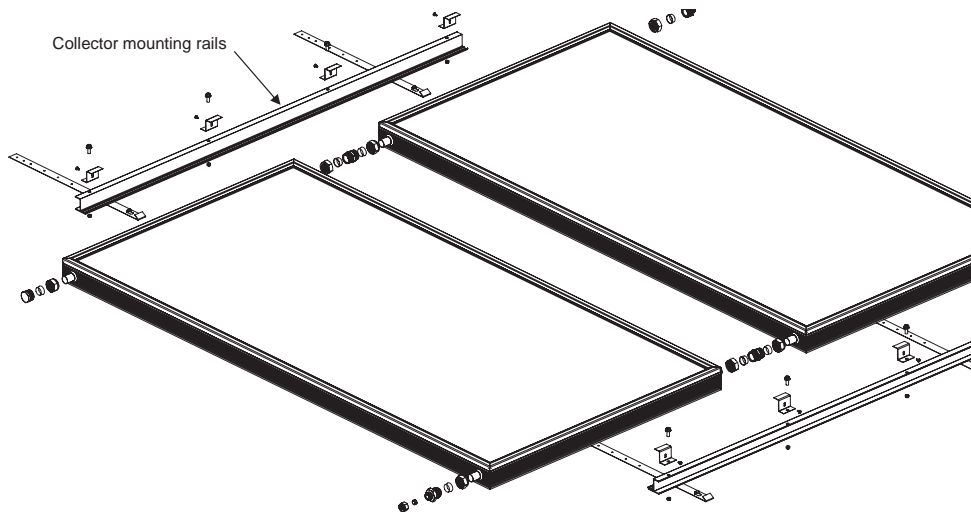
For installations requiring three collectors, an additional Collector Rail Kit is required as an extension to increase the mounting capacity from two to three collectors.

### Roof Space

It is not advisable to install collectors on roof spaces that are smaller than described below:

- 2 collectors: 3m wide × 3m high
- 3 collectors: 4.5m wide × 3m high

Roof areas smaller than these minimum measurements will make installation and later service work difficult.





## Plumbing Connections to Collectors

### Insulation

Irrespective of the pipe length, both the solar flow and return lines **must** be insulated with UV stabilized insulation suitable for solar working temperatures, e.g. Armaflex DuoSolar/Solar insulation.

### No Plastic Fittings

Only DR brass and copper pipes and fittings must be used. Plastic fittings and PVC pipes are not able to withstand the high temperatures  $>200^{\circ}\text{C}$  that the system can create. Failure to use fittings with a high temperature rating will void the warranty.

### Connections To The Collectors

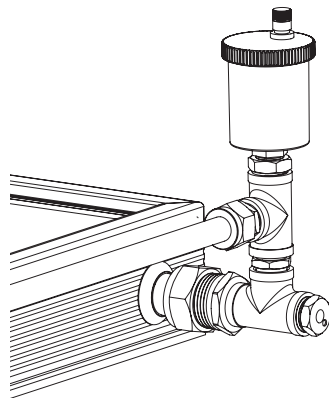
Connect the sealing fittings to the four outer connections on the collector array:

1. Fit a sealing washer and plug assembly to the top left and bottom right corners of the array.
  - a. Tighten the assembly taking care not to twist the copper tubes of the collector.
  - b. Ensure you use correctly sized spanners.
2. Screw fit the Air Bleed Valve into the top  $\frac{3}{8}$ " BSP socket and hand tighten until the nylon ring seals against the socket face.

**Important: Please open the knob on top of the valve two turns anti clockwise.**

3. Fit the sealing washer and union base fitting to the top right hand socket of the collector array.
4. Place the Hot Connection Union assembly onto the union base then tighten with the air bleed valve vertical. (NB: The air bleed valve should be at the highest position on the collectors).
5. Finally insert a washer and  $\frac{3}{4}$ " to  $\frac{1}{2}$ " conetite union to the lower left collector socket.

The collector array is now completed and ready for connection to the water heater system.





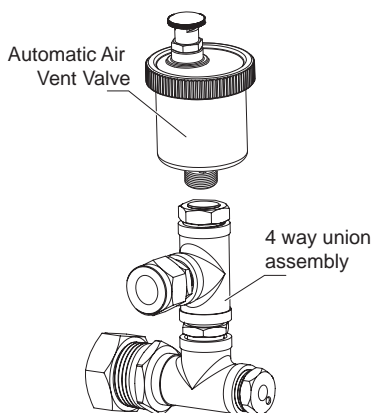
## Plumbing Connections to Collectors

### Connections To The Collectors

Supplied with the water heater are the following:

- an Automatic Air Vent Valve
- a 4 way union assembly.

Full installation instructions for these items are in the *Installer's Guide*, included inside the water heater's carton.



### Non Return Valve

A non return valve is supplied with this water heater.

The non return valve must be fitted at the solar collector return pipe, where the pipe enters the middle of the storage tank.

Ensure the non return valve is installed so that the flow direction arrow faces the storage tank.

All pipe work **must** be insulated.

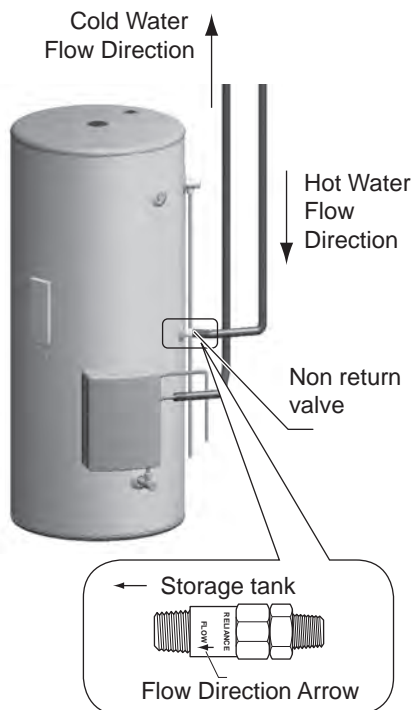
### Insulation

Pipes **must** be insulated with UV stabilized insulation suitable for solar working temperatures, e.g. Armaflex DuoSolar/Solar insulation.

### No Plastic Fittings

Only DR brass and copper pipes and fittings must be used. Plastic fittings and PVC pipes are not able to withstand the high temperatures  $>200^{\circ}\text{C}$  that the system can create.

Failure to use fittings with a high temperature rating will void the warranty.





## Owner's Manual – Dux Electric Boosted Solar Temperature Sensor

### Connections To The Tank

Supplied in the collector rail kit are the following:

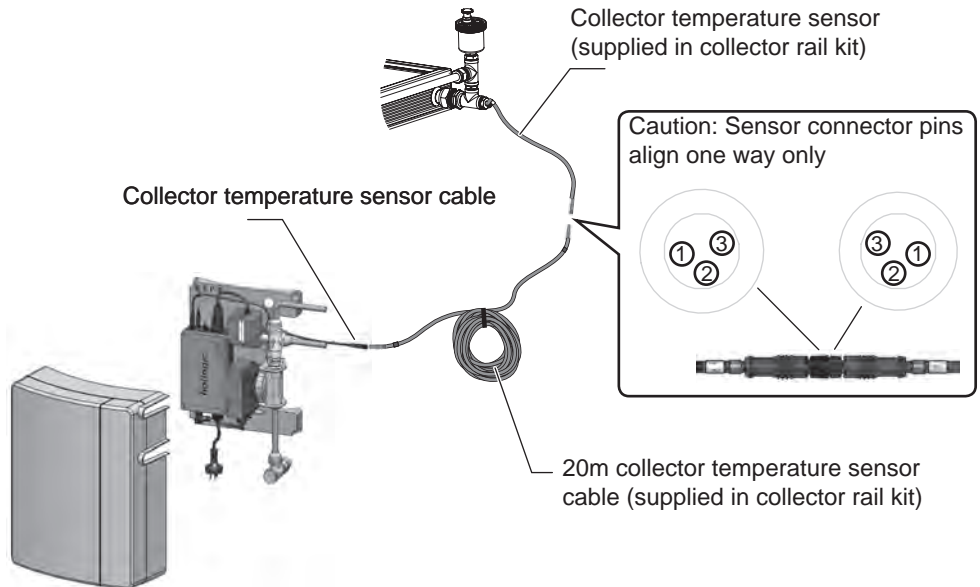
- a collector sensor
- a 20m collector sensor cable.

Full installation instructions for the temperature sensor are in the *Installer's Guide*, included inside the water heater's carton.

**Note:** Ensure that the temperature sensor cable does not come in contact with the hot collector return pipe.

**Note:** Care must be taken to ensure that all roof penetrations are sealed to prevent water ingress and to comply with all local regulations.

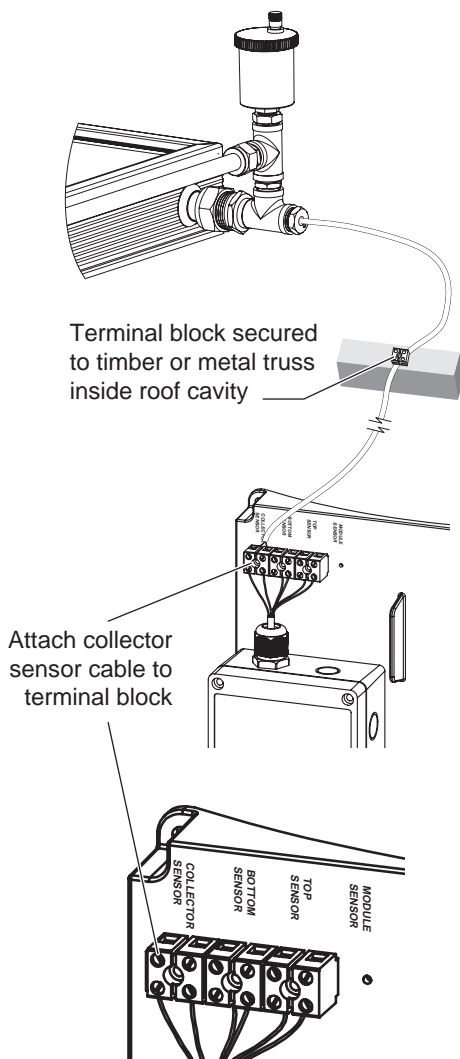
### Collector sensor connection for models 2F136SD, 3F136SD, 4F136SD







**Collector sensor connection for  
models 2F136S, 3F136S, 4F136S**





## Panel Management

(Available only for models 2F136SD, 3F136SD and 4F136SD)

### The Solar Module

The solar module provides protection against both cold and hot temperature extremes. The solar module includes the Hotlogic controller, which continually monitors temperature conditions.

### Freeze Protection

When temperatures approach freezing, the Hotlogic controller removes the water from the collectors to prevent the water freezing and causing damage. The Hotlogic controller refills the collectors when temperatures improve.

### Hot Temperature Protection

The water in the collectors can reach dangerously high temperatures, which may cause steaming, expansion and over-pressure problems. When the tank approaches its thermal maximum (maximum energy storage limit), the Hotlogic controller removes the water from the collectors when it is safe to do so, then refills them when conditions improve.

### Installation of the Solar Module

- The solar module's drain line must be safely plumbed to waste to comply with AS3500.4 and local plumbing codes. This line **must not** be connected to the PTR drain line.
- The water heater should be installed to allow easy access and removal of the solar module cover.
- The pipe extensions to the valve are

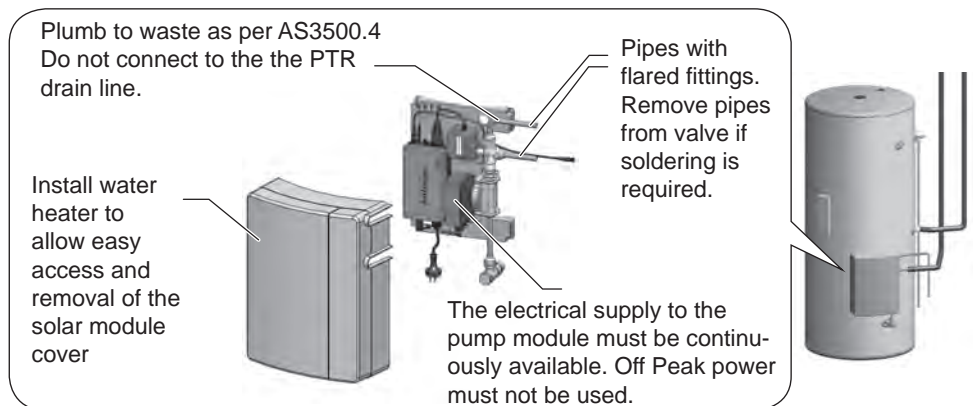
designed to provide a compression connection, so soldering should not be necessary. If soldering is required, the pipe extensions should be removed from the body of the valve to avoid damaging the valve.

- It is critical that the solar non return valve is installed on the solar collector return pipe, where the pipe enters the middle of the storage tank.
- The solar module system satisfies Level 2 test for severe frost conditions (AS/NZS 2712:2007).



## Panel Management

(Available only for models 2F136SD, 3F136SD and 4F136SD)



**Warning:** The point of discharge from each drain line shall be located so that the release of steam or hot water does not cause a nuisance, is readily discernible and incurs no risk of damage to the building or injury to persons.



# Owner's Manual – Dux Electric Boosted Solar Electrical Connections

This water heater requires the following electrical connections:

1. **Solar Pump Module** – CONTINUOUS SUPPLY GPO must be used.
2. **Supplementary Electrical Boost Element** (3.6kW) – Off Peak recommended, single phase 240V A.C. supply. A 15 amp power supply is needed.

**Note:** This water heater is designed to allow the tank boost to be connected to continuous or off peak power supply. Large daytime users of hot water that exceed the capacity of the off peak boost option should connect to continuous supply.

## Element

The booster element is located midway up the tank, so it heats up the top half of the tank only. Thus, in a 400L tank, only 200L of water is heated. This booster element is turned on only in times of low solar gain (e.g. in winter or on cloudy days), or when hot water is being used faster than the solar heating can recover.

Once the top half of the tank is sufficiently hot, the booster element is switched off.

This set up helps minimise electricity costs, while still providing a reliable back-up hot water supply.

## Regulations

All electrical work must:

- comply with local regulations and AS3000
- be conducted by a licensed electrician.

## Connections

For models not pre-wired with a flexible lead, connections are made at the terminal block under the element cover. Entry to the connection area is through the hole below the element cover, designed to accept a 20mm conduit.

For the electrician, the access cover may be removed by undoing the two screws on the cover and sliding the cover downward to disengage it from the case. Ensure that the conduit entry is well sealed to achieve complete weatherproofing.

**Note:** The water heater is fitted with a thermostat and over-temperature energy cut-out. Under no circumstances should the water heater be operated without both these devices being in the circuit. Replacement must be carried out only by a qualified electrician or the manufacturer.

**Danger:** The operation of the thermal cut-out indicates a possibly dangerous situation. Do NOT reset the thermal cutout until the water heater has been serviced by a qualified person.



## Electrical Connections

**Electrician:** Press the reset button on thermostat(s) to ensure over-temperature cut-out is set.

### Power Cables

Power cables should be routed away from any hot water pipes. If this is not practical, insulate the hot water pipes to avoid direct contact with the power cables.

If the power cable is damaged, it should be replaced by a lead assembly available only from Dux service agents.

### Solar Module Electrical Connection

The electrical supply to the pump module must be continuously available. Off Peak power must not be used.

**Caution:** The water heater must be filled with water before turning on the electricity supply.



# Owner's Manual – Dux Electric Boosted Solar Hotlogic Controller

## Hotlogic Controller

The Hotlogic controller should be plugged in to a weatherproof approved power outlet for 10amps, 230 to 250 volt, 50Hz supply.

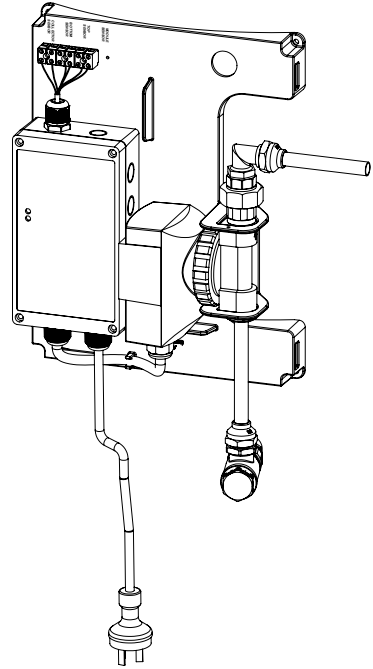
## Hotlogic Controller Diagnosis

### Codes

The Hotlogic controller must be wired according to the diagram shown right.

During normal operation, the Hotlogic controller will display only green LEDs.

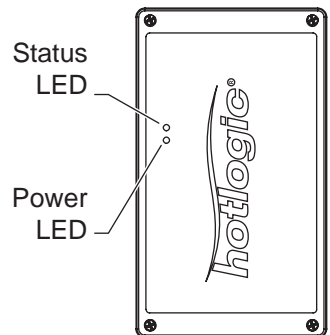
If there are any red status lights visible, see the tables below for an explanation.



**For models 2F136S, 3F136S,  
4F136S:**

Power LED (Green)	Status LED (Red)	Explanation
Alternating		Power on initialisation (LEDs blink alternately)
On	Off	All sensors normal, pump off
On	On	All sensors normal, pump on or booster on
Flashing	Off	Sensor error (collector or tank)
Off	Flashing	Tank bottom sensor error
Flashing	Flashing	Tank top sensor error

**Note:** If any sensor is open circuit, the system will indicate a Green only flashing LED.

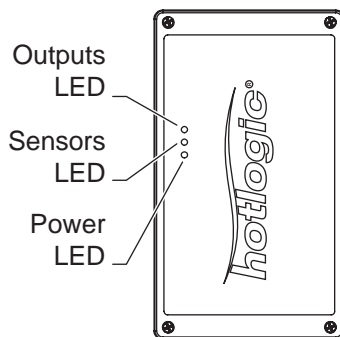
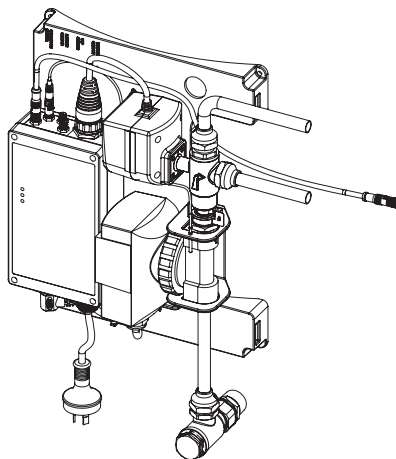




# Hotlogic Controller

**For models 2F136SD, 3F136SD,  
4F136SD:**

Observation	Explanation
<b>Power LED</b>	
Solid green	Operating normally
Off	No power
Red flashing	Internal Hotlogic error
<b>Sensors LED</b>	
Solid green	Operating normally
Green fast flashing	Over temperature protection operating
Green slow flashing	Frost protection operating
Red flashing	1 flash = collector sensor error 2 flashes = tank bottom sensor error 3 flashes = tank top sensor error 4 flashes = solar module sensor error
<b>Output LED</b>	
Off	Not active
Solid green	Active (pump/valve operating)
Green slow flashing	Boosting required
Red flashing	Output error Solar module valve error





## Owner's Information

### How Does My System Work?

The main components of your solar water heater are the water storage tank, the collector(s), the solar module and the electric booster.

The water storage tank is used to store the heated water ready for household use. It is a specific electric boosted solar storage tank, incorporating a high temperature vitreous enamel lining to provide long life, and a high density polyurethane insulation to ensure minimal heat loss.

The collectors contain a multi tube copper water way system bonded to a solar absorber plate, the combination of which collects solar energy and transfers it to the fluid within the collector circuit. The absorber plate system is enclosed in an insulated casing covered with a high strength, low iron glass sheet that protects the absorber system from physical damage.

The electric booster is used to heat part of the stored water on those occasions when there is reduced solar energy available, e.g. cloudy days. The electric booster system is thermostatically controlled so it only delivers the energy required, then automatically turns off.

Under normal operating conditions, most of the water within the storage tank is heated by the collectors.

### What Does The Circulation Pump Do In The System?

The circulating pump draws cold water from the cold inlet or the bottom of the tank and circulates it through the collectors. The water is heated in the collectors by absorbing heat from the sun and continues on its pumped circulation path back to the middle of the storage tank, ready for use.

The pump consumes only a very small amount of electrical energy to perform this task. The circulation pump system has an integral 'non-return valve' to prevent solar energy from thermosiphoning back through the storage tank to the collectors at night.

### How Long Will The Heater Run Each Day?

The length of time that the solar heater will run each day will vary, and is dependent upon the amount of hot water being used by the household and the availability of sunlight to heat the collectors.





## Owner's Information

### The Hotlogic Controller

This device ensures optimum system efficiency and safety. The basic functions are:

1. Detecting availability of useful solar energy in the collectors. When the temperature of the solar collector is 10°C higher than the storage tank temperature, the circulation pump is initiated. If the difference in temperature falls to less than 2°C the circulation pump is stopped.
2. Controlling maximum storage tank temperature. If the storage tank temperature reaches 80°C, the circulation pump is stopped to prevent excessive temperatures in the storage tank.
3. Frost Protection (for models 2F136SD, 3F136SD, 4F136SD only). When the temperature drops to near-freezing levels, the Hotlogic controller will activate the collector drain function and remove water from the collectors. When conditions become safe again, the Hotlogic controller signals the collectors to be re-filled. For models 2F136S, 3F136S, 4F136S, the Hotlogic will keep the pump running to avoid water freezing.
4. Over-temperature protection. Water will be removed from the collectors once the solar system can no longer safely supply heat to the tank.

### What Should I Do During Holidays?

The system can monitor and control the solar collector temperature while you are away. Whilst the system is safe with the power turned off, the collector temperatures can reach very high temperatures, causing high stress to their internal components.

### The power supply to the solar module must be left on.

**Warning:** If the hot water system is not used for two weeks or more, a quantity of hydrogen gas, which is highly flammable, may accumulate in the water heater. To dissipate this gas safely, it is recommended that a hot tap be turned on for several minutes at a sink, basin or bath but not a dishwasher, clothes washer, or other appliance. During this procedure there must be no smoking, open flame or any other electrical appliance operating nearby. If hydrogen is discharged through the tap, it will probably make an unusual noise similar to air escaping.

**Note:** There are no user serviceable components in the solar control module system. Only an authorised service representative is permitted to remove any covers or make setting adjustments. Do not open or adjust any electrical covers or devices yourself.



## Owner's Information

### Water Quality

Your Dux water heater has been manufactured to suit water conditions of most Australian metropolitan supplies. Please note that harsh water supplies can have a detrimental effect on the water heater and its life expectancy. If you are unsure about your water quality you can obtain information from your local water supply authority.

The water heater is designed for use in areas where the Total Dissolved Solids (TDS) content of the water supply is less than 2500 mg/L. In areas where the TDS exceeds 600mg/L the magnesium alloy anode (supplied in the heater) may become over reactive. To alleviate this, the anode should be replaced with an aluminium alloy anode, available from your local Dux supplier.

Water can also be very corrosive, measured by the saturation index. If the water saturation index is greater than 0.40 an expansion control valve should be fitted and where the index is greater than 0.80 the water heater installed should be a Hard Water Model. Please consult our Service Department for advice if required.

### System Maintenance

The solar water heater is designed such that there is little to do regarding system maintenance other than that detailed in this *Owner's Manual*. The components in the solar side of the system do not require maintenance.

Personally inspecting or servicing any part of the system is not recommended.

Should you decide to personally inspect the roof mounted system components, it is essential that you use all safety devices required to ensure your safety.

After each 5 years of operation you should contact the local service agent to replace all safety valves and anodes to ensure continued system life and operational safety. In locations where the water has a Total Dissolved Solids (TDS) content greater than 600 ppm, this service is recommended each 3 years.

### Six Monthly Service – By Owner

Open the PTR Valve for approximately 10 seconds by lifting the lever on the valve to ensure water is relieved to waste through the relief drain pipe. Lower lever gently and check that it closes correctly.

### One Year Service – By Authorised Personnel Only

Inspect and clean pump turbine of any foreign material (calcium or other).

If water quality is poor, carry out inspection more frequently.



## Owner's Information

### Five Year Service – By Authorised Personnel Only

The five year service must be carried out by a licensed tradesperson. It is recommended that this service be carried out by your local Dux agent.

The service should include the following:

- Replace the Pressure & Temperature Relief Valve.
- Replace the anodes (in areas of harsh or adverse water conditions, a more frequent check of the anodes is recommended).
- Cleaning of collectors to improve solar collection
- Flush the water heater by doing the following:
  - i. Turn off the power.
  - ii. Turn off the cold water supply to the water heater at the isolating valve.
  - iii. Gently operate the easing lever on the Pressure & Temperature Relief Valve to release the pressure in the water heater.
  - iv. Disconnect the cold water inlet union to the heater and attach a drain hose.
  - v. Gently operate the Pressure & Temperature Relief Valve to let air into the heater and allow water to escape through the hose.
  - vi. Flush the heaters until clear water appears then reconnect

all fittings, fill the heater and restore the electricity supply.

### Draining the Water Heater

To drain the water heater, follow steps i to v above until no more water escapes from the appliance.



## Owner's Manual – Dux Electric Boosted Solar Troubleshooting

### **What Should I Check Before Making A Service Call?**

If there is not enough hot water, it is recommended that the following points be considered before making a service call. If after checking the following points the problem has not been identified, please contact Dux.

### **Water Discharge From Pressure & Temperature Relief Valve (PTR)**

It is not unusual for a small quantity of water to discharge during the heating of water in your storage tank. The amount of discharge will depend on hot water usage and size of the storage tank. As a guide, it will discharge 3% of the storage capacity of water in the heating period.

### **Continuous Trickle (PTR)**

This is most likely due to a build up of foreign matter. In this case, try gently raising the easing lever on the PTR Valve for a few seconds, then release gently. This may dislodge a small particle of foreign matter and rectify the fault.

### **Steady Flow (PTR) – More than 20L per day**

This may be caused by excessive water supply pressure, a faulty PTR Valve or a faulty thermostat. Turn off the electricity supply and contact Dux on 1300 365 115.

### **Insufficient Hot Water**

- Is the Pressure & Temperature Relief Valve discharging too much water?
- Do you have the correct size water heater for your requirements? Sizing details are available from your Dux supplier.
- Is one outlet (such as the shower) using more hot water than you think?
- Carefully review the family's hot water usage and if necessary check the shower flow rates with a bucket, measuring the amount of water used over that period of time. If it is not possible to adjust water usage patterns, an inexpensive flow control valve can easily be fitted to the shower outlet.
- Consider that during night time heating, the time taken to heat the tank can take longer (less energy in the air) so you may find that the tank has not fully recovered from a period of heavy usage the previous evening.
- Consider that often the hot water usage of showers, washing machines and dishwashers can be under estimated. Review these appliances to determine if your daily usage is greater than the storage volume of your water heater. If for example you have a 315 litre storage tank and you are using



## Troubleshooting

450 litres of water it is possible that there will be certain times of the day where there is insufficient hot water. It is also advisable to inspect tap washers etc. for leakage and replace if necessary.

- Is there a leaking hot water pipe or dripping hot water tap? A small leak can waste a large quantity of hot water.
- Replace faulty tap washers and have your plumber rectify any leaking pipe work.

### High Electricity Bills

#### Low Solar Energy Input

If there have been prolonged periods of cloudy weather, or winter is approaching, it may be necessary for the electric booster element to run for longer periods, and this will increase energy bills.

#### Solar Collector Shading

Often trees or other buildings can shade the collectors, or there can be dirt build up on the glass cover. Trees should be cut back if possible, or the system relocated if removal of the shading is not possible, in the present location. If the glass is dirty, this should be cleaned with any normal domestic glass cleaner – recommended to be done by an authorised tradesperson.

### Condensation in Collectors

In winter, or in times of heavy rain, water vapour may form in the warm and humid collectors, and then condense on the inside surface of the cold glass.

As collectors are insulated for optimum performance and have minimal internal airflow, condensation that has formed during these times takes a longer time to disperse but will do so when enough direct sunlight has come in contact with the collectors. The warmer the sunlight, the faster it will disperse.

Condensation in the collectors does **not** affect the system's performance.



# Owner's Manual – Dux Electric Boosted Solar Warranty

## **Dux Hot Water Unit**

### **Manufactured by Dux Manufacturing Limited (“Dux”)**

### **Terms of Warranty and Replacement Guarantee**

All Sunpro Electric Boosted Solar water heaters manufactured and sold after 1 January 2012 are backed by a comprehensive one (1) year full parts and labour warranty (conditions apply – see below).

Furthermore, the Sunpro Electric Boosted Solar tank and solar collectors include a guarantee to replace your hot water unit if the inner cylinder fails within five (5) years and to replace the solar collector if it fails within five (5) years (conditions apply – see below).

The terms of the Warranty and replacement guarantee are set out below.

### **1 Year Comprehensive Warranty**

Your hot water system and its components (“Unit”) are covered by 1 year (parts and labour) warranty against defective factory materials or workmanship.

This warranty period commences from the date of installation of the Unit providing you have proof of this installation date. Where the date of completion of installation is not known or cannot be proven, then this warranty will commence one (1) month after the date of

manufacture (refer to the data label on the unit).

### **5 Year Replacement Guarantee**

If an inner cylinder or solar collector fails on a Dux hot water unit within a further four (4) years after the end of the initial one (1) year warranty period, Dux will provide a free replacement hot water unit and/or solar collector at the nearest approved Dux agent or Dux office to the owner's home. Under this replacement guarantee, the transport, installation and labour costs of delivering the replacement hot water unit and removing and replacing the existing hot water unit will be the responsibility of the owner of the existing hot water unit. Please note that Plumbing regulations require that the replacement collector be re-installed by a licensed Plumber.

### **Conditions of Warranty and Replacement Guarantee**

The benefits provided to you by the warranty and replacement guarantee (collectively “Warranty”) are in addition to the guarantees and other rights and remedies available to you under the Australian Consumer Law (“ACL”).

If the Unit fails to conform to this Warranty during the applicable period, Dux will replace any failed component or where necessary, in the absolute discretion of Dux, replace the Unit free of charge including reasonable labour costs incurred in normal business working hours.



## Owner's Manual – Dux Electric Boosted Solar Warranty

This Warranty only applies to defects which have arisen solely from faulty materials or workmanship in the Unit and does not apply to other defects which may have arisen as a result of, without limitation, the following: accidental damage, abuse, misuse, maltreatment, abnormal stress or strain, harsh or adverse water conditions including excessive water pressure or temperature, neglect of any kind or otherwise as a result of any use of the Unit contrary to the product manual or other instructions provided by Dux. Alterations or repair of the Unit other than by an accredited and licensed service agent or technician are not covered. Attachment of accessories or use of non genuine replacement parts other than those manufactured or approved by Dux are not covered by this Warranty.

This Warranty applies only to the Unit and does not cover any ancillary plumbing or electrical parts supplied by the installer such as pressure limiting valve, tempering valve, line strainer, stop cocks, non-return valve, electrical switches, pumps or fuses, or faulty installation.

The Unit must be installed by a licensed plumber in accordance with information set out in the Owner's Manual and/ or Installer's Guide supplied with the Unit and/or any relevant statutory requirements.

In addition to this Warranty, certain legislation (including the ACL) may give you rights which cannot be excluded, restricted or modified. This Warranty must be read subject to such legislation and nothing in this Warranty has the effect of excluding, restricting or modifying those rights.

If Dux fails to meet a guarantee under the ACL, your remedy for such failure may be limited to any one or more of the following:

- replacement of the Unit;
- repair of the Unit;
- refunding the cost of the Unit;
- payment of reasonable costs of having the Unit repaired;
- payment in respect of the reduced value of the Unit.

Any defective part of the Unit must be returned to the point of sale before replacement can be considered under the terms of this Warranty. If the costs of returning any defective parts are unreasonable, please contact Dux on 1300 365 115 (Australia) or 0800 729 389 (New Zealand) so that we can arrange a collection if appropriate.

Warranty claims can be made at the point of sale or by posting or faxing a warranty claim to Dux (contact details listed below) within one (1) month of the appearance of a defect. Warranty claims under this extended warranty must



## Owner's Manual – Dux Electric Boosted Solar Warranty

include the following details:

- Date of Purchase;
- Location of Purchase;
- Proof of Purchase;
- Date of Installation;
- Contact Details;
- Product Serial Number

### **Contact details**

Dux's contact details are as follows:

#### **Business Address:**

Dux Manufacturing Limited  
Lackey Road  
Moss Vale, NSW, 2577  
Australia

#### **Telephone:**

1300 365 115 (Australia)  
0800 729 389 (New Zealand)

#### **Facsimile:**

(61 2) 4868 0257

#### **Email:**

[duxaftersales@gwagroup.com.au](mailto:duxaftersales@gwagroup.com.au)

**Note:** If the Unit is located in a position that does not comply with the installation instructions or relevant statutory requirements, then this Warranty does not cover major dismantling or removal of cupboards, doors, walls or special equipment and/or excessive labour, at the determination of Dux, to make the Unit accessible for repair or replacement.

As required by legislation, including under the ACL, any claims for damage to furniture, carpets, walls, foundations or any other consequential loss either directly or indirectly due to defects of any kind in a Unit will only be met by Dux where the damage could be considered reasonably foreseeable.

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 other 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 a major failure.





## Owner's Manual – Dux Electric Boosted Solar Other Information

Product Warranty is applicable only in Australia and New Zealand.

See page 27 for terms of warranty.

*Privacy Act Amendment (2000):* If and whenever warranty service is required, your personal details will be given to an Authorised Dux Service Agent only for the express purpose of carrying out the arranged warranty service work agreed by you the client and Dux Manufacturing Limited.

### Your Details

For future convenience, fill in the following details and retain with your original invoice for your own records.

Surname:.....Given Name(s):.....

Address:.....

Town/Suburb:.....

State/Territory:..... Postcode:.....

Date of Purchase:..... Purchased From:.....

Model:..... Serial Number (located on back cover):.....

Date of Manufacture:.....

(Details on Data Label on water heater)

### Installer's Details:

Date of Installation:..... Installer's Name:.....

Address:.....

Installer's Signature:.....

### Service Details:

Date of Service:..... Serviced By:.....

Work Carried Out:.....

.....

.....

Signature of Service Agent:.....



## Owner's Manual – Dux Electric Boosted Solar



## Owner's Manual – Dux Electric Boosted Solar



# **sunpro®**

## **Electric Boosted Solar Water Heater**

For advice, repairs and service, call:

1300 365 115 (Australia)

0800 729 389 (New Zealand)

Please Register Your Water Heater



Please take a moment to fill out your details for warranty registration at:

[www.dux.com.au/warranty](http://www.dux.com.au/warranty)

or use your smartphone to scan this code:



This will ensure all your current details are registered with us for prompt warranty service if required.



Preventative Maintenance



Maintaining your hot water system will help extend its lifespan and reduce running costs.

Please register for preventative maintenance at:

[www.dux.com.au/maintenance](http://www.dux.com.au/maintenance)

Serial Number



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