



V-HAWK X4

Owner's Manual &
Technical Information (RTF)



Legal

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Before using your product, review all documentation and inspect the product carefully. If for some reason you decide it is not what you wanted, then do not continue with unpacking, setup or operation of your product. Your local hobby dealer cannot accept a product for return or exchange after partaking in actions that produce wear and tear.

Read, understand and follow all instructions and accompanying material carefully before operating or assembling your product to prevent serious damage. Failure to complete these tasks properly or intentional aversion to the content will be considered abuse and/or neglect.

Product specifications are subject to change without notice. Due to ongoing development, the actual product may vary from images shown.

This product contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm.

This product is not a toy! (14+) Recommended for ages 14 and up. Adult supervision required for ages under 18 years old. Contains small parts, keep out of reach of children 3 years of age and younger.

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Introduction

Congratulations for purchasing this Ready-To-Fly version of the Ares Z-Line V-Hawk X4. The V-Hawk X4 is designed for intermediate and experienced pilots who are looking for a unique flying experience. i.e. the ability to take off vertically like a helicopter or quadcopter and transition to forward flight like a conventional airplane. This flying transition is made easy with the use of a pre-installed, innovative flight control board and pre-assembled rotating motor nacelles. With just the flip of a channel switch on your transmitter the motor nacelles rotate. As they do, the flight controller automatically changes the programming from flying like a quad to flying like an airplane with elevator controls. Simply flip the switch back to return to quad-flying mode.

This Ready-To-Fly package incorporates the reliable new Hitec Red 2.4GHz radio protocol that's compatible with all Hitec air systems on the market and housed within the dependable IKONNIK KA-6 transmitter and receiver combo.

The V-Hawk X4's durable EPO airframe comes nearly 100% pre-assembled and includes all four BL motors, four BL ESCs, a control board with stabilization, two 9g servos, one 17g MG servo, and even a 1300mAh 4S Li-Po battery (4S charger not included). The only assembly you'll have to complete is gluing on the tail, for which the glue is included. So, if you're ready to take on the adventure of an airplane capable of performing vertical take-offs and landings (VTOL), and short take-offs and landings (STOL), you've bought the right model. Simply follow the step-by-step guide contained herein and you'll be ready to fly your V-Hawk in no time.

Safety Precautions

Failure to use this product in the intended manner as described in the following instructions can result in damage and/or personal injury. A Radio Controlled (RC) airplane/helicopter/quadcopter is not a toy! If misused it can cause serious bodily harm and damage to property. Keep items that could become entangled away from the propellers, including loose clothing, tools, etc. Be especially sure to keep your hands, face and other parts of your body away from the propellers. As the user of this product you are solely and wholly responsible for operating it in a manner that does not endanger yourself and others, or result in damage to the product or the property of others. This model is controlled by a radio signal that is subject to possible interference from a variety of sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance from objects and people in all directions around your model as this will help to avoid collisions and/or injury.

General Precautions

- Never operate your model if the voltage of the batteries in the transmitter is too low.
- Always operate your model in an open area away from obstacles, people, vehicles, buildings, etc.

- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable batteries, etc.).
- Keep all chemicals, small parts and all electronic components out of the reach of children.
- Moisture causes damage to electronic components. Avoid the exposure to water of all electronic components, parts, etc. that are not specifically designed and protected for use in water.

FCC Information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference.
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

The associated regulatory agencies of the following countries recognize the noted certifications for this product as authorized for sale and use: USA, UK, AU.

Package Contents

- 1 x V-Hawk X4 factory assembled airframe
- 1 x V-Hawk X4 tail fin
- 1 x V-Hawk X4 tricycle undercarriage set
- 2 x V-Hawk X4 propeller sets
- 4 x V-Hawk X4 propeller adapters
- 1 x IKONNIK KA-6 6-channel, Hitec Red, 2.4GHz, Mode 2 air transmitter
- 1 x 4S 1300mAh LiPo battery
- 1 x Tube of foam cement



Required To Complete

- 4 x AA alkaline cells
- 1 x 4S compatible Li-Po charger
- 1 x LiPo charging sack (recommended)
- 1 x Hook and loop tape (for battery retention)

LiPo Battery Warning

IMPORTANT NOTE: Lithium Polymer batteries are significantly more volatile than the alkaline, NiCd or NiMH batteries also used in RC applications. All instructions and warnings must be followed exactly to prevent property damage and/or personal injury as mishandling of LiPo batteries can result in fire. By handling, charging or using the included LiPo battery you assume all risks associated with LiPo batteries. If you do not agree with these conditions please return the complete product in new, unused condition to the place of purchase immediately.

LiPo Care & Safety Precautions

- You **MUST** charge the LiPo battery in a safe area away from flammable materials.
- When charging, **NEVER** leave the LiPo battery unattended at any time. You should **ALWAYS** remain in constant observation to monitor the charging process and react immediately to any potential problems that may occur.
- After flying/discharging the battery you must allow it to cool to ambient/room temperature before recharging.
- To charge the LiPo battery you **MUST** use only a dedicated Lithium Polymer balance charger and faithfully follow the instructions provided with the product. Failure to do so may result in a fire causing property damage and/or personal injury. **DO NOT** use a NiCd or NiMH charger.
- If at any time during the charge or discharge process the battery begins to balloon or swell, discontinue charging or discharging immediately. Quickly and safely disconnect the battery, then place it in a safe, open area away from flammable materials to observe for at least 15 minutes. Continuing to charge or discharge a battery that has begun to balloon or swell can result in a fire. A battery that has ballooned or swollen even a small amount must be removed from service completely.
- Store the battery at room temperature, approximately 68 – 77 ° Fahrenheit (F), and in a dry area for best results.

- When transporting or temporarily storing the battery, the temperature range should be from approximately 40 – 100 °F. Do not store the battery or model in a hot garage, car or direct sunlight. If stored in a hot garage or car the battery can be damaged or even catch fire!
- Do not over-discharge the LiPo battery. Discharging the LiPo battery too low can cause damage to the battery resulting in reduced power, flight duration or failure of the battery entirely.
- LiPo cells should not be discharged below 3.0V each, under load. In the case of the 4-cell/4S 14.8V LiPo battery used to power the V-Hawk X4, you will not want to allow the battery to fall below 12V during flight.
- The electronic speed control (ESC) has low voltage cut-off (LVC) protection. When the flight battery voltage drops below a set point the throttle is gradually reduced. At this point the airplane will need to be landed and the battery recharged.

Transmitter Details

Your V-Hawk X4 RTF includes an IKONNIK KA-6 6-channel airplane transmitter equipped with 2.4GHz Hitec Red technology, trim levers, servo reversing switches and optional use delta/elevon mixing. The transmitter's controls and function switches are detailed below.



Final Assembly

1. Remove the components from the box and ensure you have the following parts: Fuselage and wing assembly, tail fin, foam cement, undercarriage set, propeller set (x4) with prop adapters, spare propellers (x4), transmitter and LiPo battery.



2. Glue the tail fin to the rear of the fuselage using the contact adhesive supplied. Apply to the mating surfaces, press the parts together to spread the glue evenly across the joint, then detach the fin and leave for 5 or 10 minutes until the glue is dry. Reattach the fin and press firmly to ensure a good bond.



3. Slot the wire undercarriage units into the sockets on the fuselage underside.



4. Read and fully understand the Li-Po Care and Safety Precautions (detailed on page 6) and never leave LiPo batteries unattended whilst charging. Fully charge the 4S 1300mAh LiPo in accordance with guidelines and instructions supplied with your battery charger.



5. Use hook and loop tape to install the flight battery as far forward as possible. Be sure to keep the battery wires clear of the motor tilt control horn and its pushrod.



6. Remove the transmitter battery cover and insert four AA alkaline cells.



7. Switch ON your KA-6 transmitter, ensure the LED is lit solid red, center all the digital trim levers then move the throttle stick to the low position.



8. Connect the battery to the ESC. AA series of 4 audible beeps, a pause, and a single beep will be heard indicating that the ESC is armed and operational. Stow the leads carefully within the fuselage and replace the canopy hatch. In the unlikely event that the servos do not operate see Transmitter and Receiver Pairing on page.



9. With the sticks and trims centered check that the elevon control surfaces are in the neutral position. If not unhitch the clevis and screw it in or out on the threaded portion of the pushrod until the control surface is properly centered. When finished, snap it back in position on the outer hole of the horn.



10. With propellers removed, open the throttle slowly and check that all four motor shafts turn in the correct direction as shown in STEP 14.



11. With motors rotated to the forward flying position pull the elevator stick back and check that the both elevons move in an upward direction. Push the elevator stick forward and check that the elevons move in a downward direction.



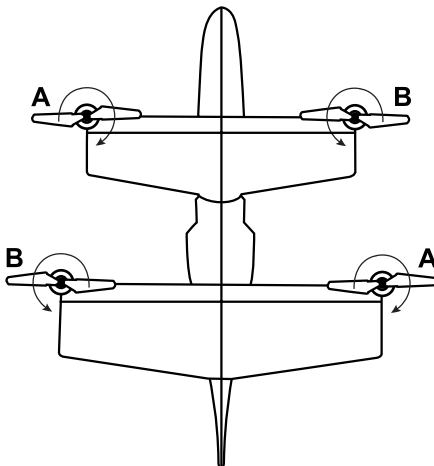
12. With motors still in the forward flying position move the aileron stick to the right and check that the right-hand elevon moves in an upward direction whilst the left-hand elevon moves downward. Moving the aileron stick to the left will have the opposite effect.



13. With motors still in the forward flying position operate the 5th channel function and check that they smoothly transition to the vertical hovering position. Note that in this configuration movement of the elevons will be restricted in all directions. Also note that the elevator stick will tilt the motors forward and backward to control forward/backward flight in hover mode.



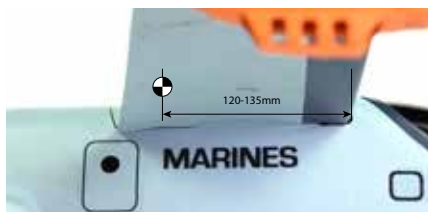
14. Remove the canopy, unplug the Li-Po battery and switch OFF the transmitter. Check the drawing here noting the correct location of the four propellers, each marked either A or B.



15. Slide each propeller and clamp-style prop adaptor over its respective motor shaft, and push it as far down as it will go. Insert a neatly fitting torque bar through the hole in the spinner nut and firmly tighten, noting that a loose propeller has the potential to cause severe injury.



16. With the Li-Po battery located and the canopy hatch fitted check that the balance point is between 120 and 135mm from the leading edge of the front wing.



17. With the aircraft sitting on a flat/level surface, move the throttle stick to the low position, switch ON the transmitter once more and connect the battery and ESC whilst keeping well clear of the live propellers. At this point the motors will rotate to the 45 degree position. Leave your V-Hawk undisturbed until the on-board gyros calibrate, the process confirmed when the motors rotate from their 45 degree position to either the hover or the forward flight position, this depending on your Channel 5 switch position. Refit the canopy hatch and check once more that the control surfaces move in the correct manner. Your V-Hawk X4 is now ready to fly.



Flight Preperation

If you haven't already done so it is important now to center all the control surfaces. To do this, remove the propellers, turn on the transmitter with the throttle stick in the lowest (OFF) position and plug in the flight battery. Allow the V-Hawk's gyros to calibrate (as STEP 17 above), after which the servos will initialize. Center the servos by nudging the digital trim buttons noting that trim center is indicated by an audibly longer beep tone.

Center the servos by nudging the digital trim buttons.



The control surfaces for the elevons should be in their neutral position and not deflected in any direction. If they are not in their neutral position you will need to adjust the length of the pushrod by screwing the clevis in or out. To release the clevis from the control horn, gently pry the arms apart using a flat blade screwdriver. Disengage the clevis from the control horn and screw in or out as appropriate so that when re-attached the control surface is in its neutral position. When satisfied that the surfaces are centered, snap the clevis shut. You can now unplug the battery, and securely re-fit the propellers.

Center the servos by nudging the digital trim buttons.



Electronic Speed Controllers (ESCs)

When the flight battery is plugged in the four factory installed 12A brushless ESCs arm the servos but do not arm the motors until they receive a valid low throttle signal from the receiver. If the throttle is not in its lowest position the ESC will not arm. To arm the motors, then, the throttle stick must be in its lowest (OFF) position. This will activate the throttle and render the motors live. Before the throttle is activated please make sure that you keep clear of the propellers as a spinning prop can cause serious injury.

V-HAWK X4

The ESC includes a Battery Eliminator Circuit (BEC) that provides electrical power to the receiver and servos. This power is from the flight batteries and no additional receiver batteries are required. The ESC also has a Low Voltage Cut-off (LVC). When the voltage in the flight batteries reaches a level that is approaching 3V per cell the LVC will reduce the power to the motor gradually. If you feel that the airplane is beginning to lose power, land immediately and change or recharge your flight battery. Spare flight batteries are available - see ares-rc.com.

First Flight CheckList

- V-Hawk assembled and trims mechanically centered.
- Flight battery fully charged.
- Flight battery secured and wires stowed clear of motor tilt control horn.
- Control surfaces move in the correct direction.
- Airplane facing into wind.
- Flying site free of people, obstructions and of a suitable size.

Congratulations you are now ready to fly your V-Hawk X4

Pilot's Notes



We recommend flying your V-Hawk in a large enough space for relaxed circuits. The area required should be about the size of a ball field and be free of obstructions. We also suggest that initial flights be carried out when the wind conditions are light. That said, once you're familiar with the V-Hawk you will, of course, be able to fly in less favorable conditions.

Take-off is best carried out vertically, followed by a transition to forward flight using the Channel 5 (motor tilt) switch. In hovering flight the V-Hawk will respond much like a quadcopter in that throttle will vary height, aileron control will adjust the power of the motors to tilt the aircraft left or right, rudder will yaw the airplane, and elevator will alter the tilt angle of the motors to control forward/backward positioning. Note, however, that the elevator function will not pitch the V-Hawk in the conventional quadcopter sense.

Instead the model will tend to travel forwards or backwards in a level attitude.

Position your V-Hawk facing into wind, tilt the motors to the VTOL (Vertical Take-off and Landing) position then gently open the throttle and lift the model into the air. Spend some time familiarising yourself with the feel and the control of the aircraft in the hover and make any trim adjustments that might be necessary to maintain approximate position.

With some hovering experience under your belt you'll be ready to transition to forward flight. In the first instance it's best to do this at a height of around 100ft. To begin, and whilst still in the hover, tilt the rotors to increase the forward speed so that the wing can start to generate lift. With the V-Hawk travelling at top speed in this mode, switch the channel 5 function to tilt the motors and complete the transition. At this point the model's electronics will switch to conventional fixed-wing mode giving you regular aileron and elevator control. Note: if the switch to forward flight mode (channel 5) is performed without any forward speed, a loss of altitude will result whilst the wing works to rebalance the lift forces.

The transition back to hovering flight is very much a reverse of the above procedure. Again, in the early stages make sure to do this with some height in hand. Reduce the throttle as you approach the hovering point as this will avoid the model ballooning during the transition in lift from wing back to propellers. When the model has lost suitable speed switch the Channel 5 function to tilt the motors back to vertical, stabilize the hover, then land using the V-Hawk's quadcopter functionality.

A conventional ROG take-off and landing is also possible with the V-Hawk and can be performed comfortably from short grass or tarmac. If choosing this option note that since no rudder is available for directional control on the ground you'll need to fine-tune the tracking of the wire undercarriage and ensure that your model is facing directly into the oncoming breeze.

As you can see, the V-Hawk is not an airplane for inexperienced pilots, however those of intermediate or advanced ability will find it challenging, enjoyable and immensely rewarding.

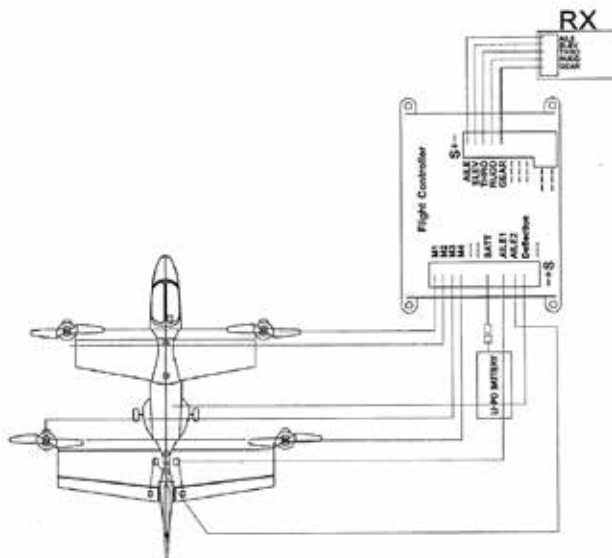
Routine Maintenance

To ensure that your V-Hawk remains in tip-top flying condition make sure you carry out the following checks after each flight:

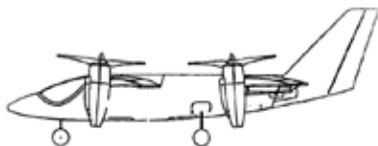
- Battery disconnected and removed from airframe.
- Prop nuts tight and propellers undamaged.
- Main wing bolts tight and wings secure.
- Elevons undamaged and slop free.
- Undercarriage straight and secure.
- Motor nacelles secure and movement unhindered.

Ancillary Information

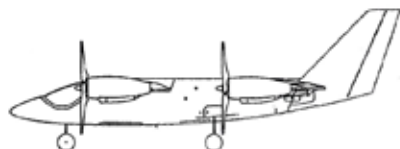
The following Flight Controller wiring schematic is provided for reference only or to assist in the replacement of the supplied KA-6 receiver.



For optimum flight performance the alignment of the motors should be in accordance with the following illustrations. Note that in the vertical hover position the front motors should display a slight rearward tilt whilst the rear motors should display a slight forward tilt.



When switched to the forward flight position the front motors will display a little upward tilt whilst the rear motors will point slightly downward. This is normal and does not affect the horizontal flight performance.



Transmitter & Receiver Pairing

1. Remove all four propellers from your V-Hawk X4, then switch ON your KA-6 transmitter. Ensure the LED is lit solid red, center all the digital trim levers, then move the throttle stick to the low position. For initial pairing the receiver must be powered on within 3 seconds of the transmitter. Once paired, however, this time constraint is no longer applicable. So, if the 3 second time period has lapsed, switch your transmitter OFF and back ON again.



2. Connect the battery to the ESC to power the receiver ON noting that the receiver's LED will initially flash red / blue, then change to fast flashing red.



3. Pairing will be complete when the receiver's fast-flashing red LED turns solid red. This usually works without issue, however if you are attempting to operate multiple aircraft at the same time be sure that you only turn one transmitter and aircraft on at a time, waiting for the two to pair before moving to the next. If a mis-pair occurs repeat the pairing process from Step 1 (above). If, on the other hand, the throttle does not initialize, simply unplug and replug the flight battery.



Replacement Parts

| | |
|-----------|---------------------------------------|
| AZSZ2707 | 9 Gram Servo |
| AZSZ2708 | 17 Gram Metal Gear Servo |
| AZSZ2710 | 12A Brushless ESC |
| AZSZ2710H | Motor Housing Set (1 Right; 1 Left) |
| AZSZ2713F | Front Wing |
| AZSZ2713R | Rear Wing |
| AZSZ2714 | Tail Assembly |
| AZSZ2715 | Assembled Fuselage |
| AZSZ2716 | Complete Landing Gear Set |
| AZSZ2723 | Aluminum Spinner |
| AZSZ2724 | Complete Decal Set |
| AZSZ2729 | 1000KV Replacement Motor |
| AZSZ2730 | Flight Controller (with cover) |
| AZSZ2731 | Battery, LiPo 4S, 14.8V, 1300mAh, 20C |
| AZSZ2732 | Complete Blade Set (2 CW, 2 CCW) |
| AZSZ2733 | Windshield |
| AZSZ2734 | Left Motor w/ Motor Housing |
| AZSZ2735 | Right Motor w/ Motor Housing |
| AZSZ2736 | Complete Front Wing Set |
| AZSZ2738 | Complete Back Wing Set |

Waranty

30-Day Limited Warranty Term Period:

We warranty that the Product(s) purchased (the 'Product') will be free from defects in materials and workmanship when the product is new (before being used) for the limited warranty term period, 30 days, from the date of purchase by the Purchaser.

If you believe a defect in material, workmanship, etc. was not apparent when the Product was new and only became evident after the Product was used, take the following steps. If you purchased the Product at a HobbyTown store, please contact your local HobbyTown store for warranty support and/ or service. If you purchased the Product from the Firelands website, use the contact information found under the Support heading to contact Firelands directly.

If you contact Firelands, you may be asked to send the product to Firelands, at your cost, for inspection. Provided the warranty conditions have been met within the warranty term period, the components that are found to be defective, incorrectly manufactured or assembled may be repaired or replaced, at the sole discretion of Firelands. Your warranty item will be returned to you at Firelands'

expense. In the event your product needs repair or a replacement part that is not covered by this warranty, your local HobbyTown store or Firelands can assist you with support and in obtaining the genuine replacement parts to repair your Product. Firelands will charge \$40.00 per hour plus the cost of replacement parts to service your aircraft if after contacting you, you so authorize such repairs. Your product will be returned to you at your expense.

If you purchased your Product from a HobbyTown Internet site not affiliated with a local store, please consult that site for its support and service policies. You can also find more information at: www.Hobbytown.com, by emailing customerservice@firelandsgroup.com, or by calling 800-205-6773.

30 DAY WARRANTY

Model Engines (Aust.) Pty. Ltd. warrants this product to be free from defects in materials or workmanship for 30 days from the date of purchase and will repair, replace or refund the purchase should the product prove to be defective.

This warranty does not apply to any unit or system or component which has been dropped, damaged in a crash, improperly installed, assembled, handled or abused.

Model Engines (Aust.) Pty. Ltd. reserves the right to void the warranty if the product has been altered or modified, has had a foreign part added, has been misused or not used for the purpose for which it was designed, has been used near or in salt water, has been water damaged, or if the damage has been caused by the customer's use of the product.

Under no circumstances does Model Engines (Aust.) Pty. Ltd. warrant nor will the consumer be entitled to consequential or incidental damages. Model Engines (Aust.) Pty. Ltd. assumes no responsibility for any other damage, inconvenience or other claims whatsoever.

LODGING A CLAIM

To lodge a claim, present the goods to your place of purchase (retailer where you bought the product) with your original purchase receipt and a written explanation of the defect.

The place of purchase (retailer where you bought the product) will then contact Model Engines (Aust.) Pty. Ltd. for a Return Authority number and will return the item for warranty assessment to Model Engines (Aust.) Pty. Ltd.. Items delivered to Model Engines (Aust.) Pty. Ltd. for warranty assessment without a Return Authority number will be returned to sender.

The warranty process may take up to 14 business days from the date of receipt. Model Engines (Aust.) Pty. Ltd. must assess each item and if warranty applies must repair or replace the item at its discretion and return it to the place of purchase (retailer where you bought the product).

Goods presented for warranty may be replaced by refurbished goods of the same type rather than being repaired. Refurbished parts may be used to repair the goods.

If the product is proved to be defective the cost and expenses relating to the delivery of the goods to Model Engines (Aust.) Pty. Ltd., will be borne by Model Engines (Aust.) Pty. Ltd.. The benefits of this warranty are in addition to other rights and remedies of the customer under any law to which this warranty relates.

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.

Model Engines (Aust.) Pty. Ltd., Unit 1, 158-168 Browns Road, Noble Park, Victoria, 3174, Australia.

www.modelengines.com.au Ph (03) 8793 5555 warranties@modelengines.com.au

This warranty information relates to goods supplied on a wholesale basis by Model Engines (Aust.) Pty. Ltd. to Australian Retailers. The warranty complies with Australian regulatory requirements and supersedes all warranty information from the original manufacturer.

