SPEKTRUM®

AS3000 AS3X Flight Stabilization Module

AS3000 AS3X Flugstabilisierungsmodul

Module de stabilisation de vol AS3000 AS3X

Modulo di stabilizzazione volo AS3000 AS3X

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit horizonhobby.com and click on the support tab for this product.

Meaning of Special Language

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product:

WARNING: Procedures, which if not properly followed, create the probability of property damage, collateral damage, and serious injury OR create a high probability of superficial injury.

CAUTION: Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury.

NOTICE: Procedures, which if not properly followed, create a possibility of physical property damage AND a little or no possibility of injury.

⚠ **WARNING:** Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not attempt disassembly, use with incompatible components or alter product in any way without the approval of Horizon Hobby, LLC. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

Age Recommendation: Not for children under 14 years. This is not a toy.

WARNING AGAINST COUNTERFEIT PRODUCTS

Always purchase from a Horizon Hobby, LLC authorized dealer to ensure authentic high-quality Spektrum product. Horizon Hobby, LLC disclaims all support and warranty with regards, but not limited to, compatibility and performance of counterfeit products or products claiming compatibility with DSM or Spektrum technology.

NOTICE: This product is only intended for use with unmanned, hobby-grade, remote-controlled vehicles and aircraft. Horizon Hobby disclaims all liability outside of the intended purpose and will not provide warranty service related thereto.

WARRANTY REGISTRATION

Visit www.spektrumrc.com/registration today to register your product.

AS3000 AS3X Flight Stabilization Module

The Spektrum™ AS3000 AS3X® Flight Stabilization Module is designed to provide the benefits of AS3X technology to Spektrum AR9140T, AR12310T and AR20310T PowerSafe™ telemetry receivers

Features
- Add AS3X technology to PowerSafe telemetry receivers.
- Fully programmable with Forward Programming through Spektrum Transmitters*
- Easy installation and setup.
- Compact design allows unit to install in almost all aircraft.
- Gains can be adjusted in flight via the transmitters knob or slider.
- No dedicated battery required. Powered through the receiver.

*DX9 and above.
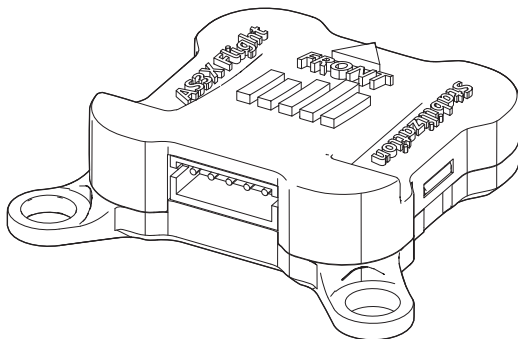
Specifications
Type: AS3X Stability Module
Dimension (WxLxH): 25.9 x 25.9 x 9.3 mm
Weight: 2.8 g
Input Voltage Range: 3.5–9.6V
Compatibility: Spektrum AR9140T, AR12310T and AR20310T PowerSafe™ telemetry receivers
Frame Rate: 22ms, 11ms and 5.5ms (Only use 11ms and 5.5 ms with digital servos)

Installing the AS3000 AS3X Flight Stabilization Module

Bind the PowerSafe Receiver

1. Bind the Forward Programming enabled PowerSafe Receiver to a Forward Programming enabled transmitter. See the receiver manual for binding instructions.

2. Fly and trim the aircraft before proceeding.

Installation

1. Solidly mount the AS3000 on a smooth flat surface in the aircraft. The module must be mounted flat and in line with the nose/tail. There are 8 orientation options available.

2. Connect the cable from the Sensor port on the receiver to the port on the rear of the AS3000.
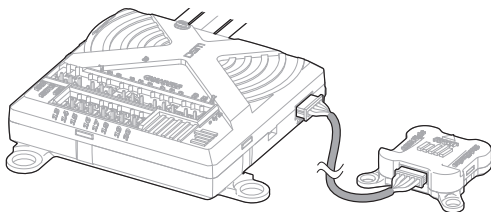
IMPORTANT: Update your Spektrum transmitter with the latest Spektrum AirWare™ software to take advantage of Forward Programming.

See the transmitter manual for updating instructions.
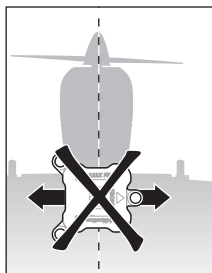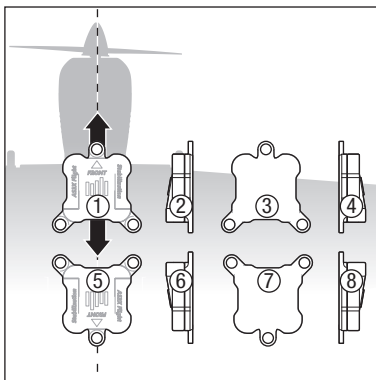
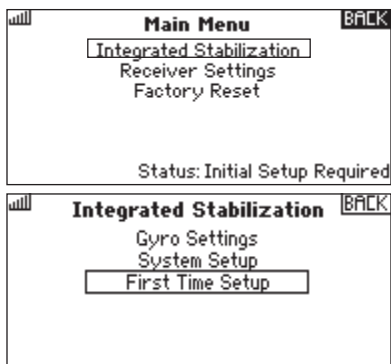**IMPORTANT:** Do not mount the sensor perpendicular to the flight path.

AS3000 and Forward Programming Setup Instructions

First Time Setup

1. Enter the Function list in the transmitter, and roll to and select Forward Programming.

2. In the Forward Programming menu, press the roller to enter Integrated Stabilization.

3. Roll to and select First Time Setup. Before proceeding with setup, read each of the 2 information screens that appear, select NEXT at the bottom of each page to continue.

IMPORTANT: Do not continue setup if the model has not been flown and properly set up.

IMPORTANT: Any changes to the model setup require re-running First Time Setup.

```
┌─────────────────────────────────┐
│ ⊿ⅲⅲ      Main Menu        BACK  │
│       Integrated Stabilization   │
│          Receiver Settings       │
│            Factory Reset         │
│                                  │
│                                  │
│        Status: Initial Setup Required │
└─────────────────────────────────┘
```

```
┌─────────────────────────────────┐
│ ⊿ⅲⅲ  Integrated Stabilization  BACK │
│          Gyro Settings           │
│          System Setup            │
│          First Time Setup        │
│                                  │
│                                  │
└─────────────────────────────────┘
```
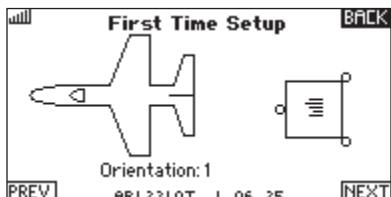
Orientation

1. Select Orientation, and press the roller to change if necessary.

IMPORTANT: Eight orientation options are available. Select the orientation that correctly matches the orientation of the AS3000 in the model.
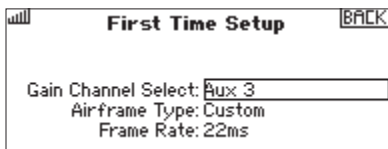
2. After the orientation is correct, roll to next and press to enter or roll to PREV to return to the previous menu.
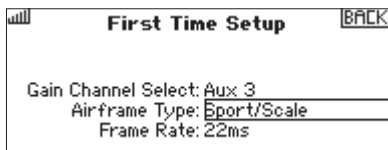
```
┌─────────────────────────────────┐
│ ⊿ⅲⅲ    First Time Setup    BACK  │
│                                  │
│                                  │
│                                  │
│          Orientation: 1          │
│ PREV      ARI2310T  1.06.25  NEXT │
└─────────────────────────────────┘
```

Gain Channel

1. At the Gain Channel Select option, press the roller to select the input to adjust the gain settings.

TIP: Use Channel Input Config inside the Channel Assign Menu to select the input for the channel you wish to use for gain adjustment.

```
┌─────────────────────────────────────┐
│ ..ull    First Time Setup     BACK  │
│                                      │
│                                      │
│ Gain Channel Select: Aux 3           │
│        Airframe Type: Custom         │
│          Frame Rate: 22ms            │
└─────────────────────────────────────┘
```

2. Roll to the Airframe Type option. There are 2 different model types available, Sport/Scale and 3D. These options pre-populate maximum gain values for each axis, and the gain channel selected scales the gains for all axes up or down. Select the appropriate type for your model.

```
┌─────────────────────────────────────┐
│ ..ull    First Time Setup     BACK  │
│                                      │
│                                      │
│ Gain Channel Select: Aux 3           │
│        Airframe Type: Sport/Scale    │
│          Frame Rate: 22ms            │
└─────────────────────────────────────┘
```

3. Roll to Frame Rate, and select the frame rate desired. The frame rate selected will adjust the frame rate of the response of the receiver and AS3000 to the servos. Frame rate is applied to all channels from 1 to 12 (13 to 20 are always 22ms), not just gyro assigned outputs.

IMPORTANT: 22ms is the default setting and is appropriate for most aircraft.

IMPORTANT: The highest performance option is 5.5ms, however this selection requires servos that can handle this frame rate. If the frame rate is too high, it may cause jittery servos and shorter servo life.
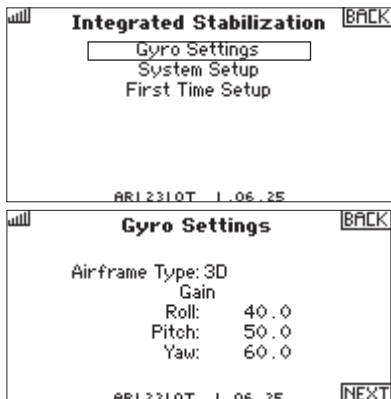
4. After the Gain Channel Select, Airframe Type, and Frame Rate are selected, roll to and press Apply.

```
┌─────────────────────────────────────┐
│ ..ull    First Time Setup     BACK  │
│                                      │
│                                      │
│ Gain Channel Select: Aux 3           │
│        Airframe Type: Sport/Scale    │
│          Frame Rate: 5.5ms           │
│                                      │
│ ┌─────────────────────────────────┐ │
│ │           Apply                 │ │
│ │PREV      AR12310T  1.06.25      │ │
└─────────────────────────────────────┘
```

TIP: Most aircraft will be setup without additional steps at this point. For additional setup options continue on to the next pages :

Gyro Settings

1. Select Gyro Settings to reset the maximum gain values appropriate for the model type.

2. Manually adjusted Roll, Pitch, and Yaw maximum gains as desired.

3. Press next to adjust Stick Priority.

▫ııll	**Integrated Stabilization**	BACK
	Gyro Settings	
	System Setup	
	First Time Setup	
	AR1231OT 1.06.25	

▫ııll	**Gyro Settings**	BACK
	Airframe Type: 3D	
	Gain	
	Roll: 40.0	
	Pitch: 50.0	
	Yaw: 60.0	
	AR1231OT 1.06.25	NEXT

Stick Priority

Stick priority reduces the amount of gyro gain as you move the control stick away from center. 0 means the gain does not reduce as the control stick is moved. At 100, the gain goes to 0 when max stick deflection is reached.

▫ııll	**Advanced Gyro**	BACK
	Stick Priority	
	Roll: 160	
	Pitch: 160	
	Yaw: 160	
PREV	AR1231OT 1.06.25	NEXT
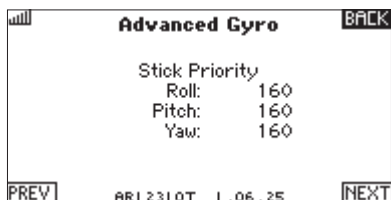
The default setting is 160, which means the gain goes to 0 at 40% stick input. The maximum setting is 200, which means the gain goes to 0 just off of center stick position.

1. Stick Priority can be adjusted for all 3 axes independently.

2. Press NEXT to select the Heading

7

Heading

Heading is Off by default. Heading can be turned on independently for each axis. With Heading On, the stabilization system will keep the model on the last heading of the axis selected until disturbed by the user by stick inputs. When heading is enabled, a negative channel input is required on the gain adjustment channel for heading to take effect (Positive = gyro, negative = heading). When active on yaw, the model will require rudder input to yaw (proverse yaw) to turn. Aileron control will result in roll only.

```
╷╷╷╷                 Advanced Gyro              BACK

                         Heading
                        Roll: Off
                        Pitch: Off
                        Yaw: Off


PREV          ARI2310T  1.06.25
```

Select BACK twice to exit out of Gyro Settings.

System Setup

```
╷╷╷╷                 System Setup               BACK
               Relearn Travel & Reverse
                      Orientation
                  Gain Channel Select
                       Nosewheel


              ARI2310T  1.06.25
```

Relearn Travel and Reverse

Used to re-teach the receiver and AS3000 the travel limits and reversing after the first time setup is already completed and changes are made to travel adjust, absolute travel, and servo reversing.

1. Select Relearn Travel and Reverse, the system will automatically sync the current transmitter settings with the receiver and AS3000.

2. Once complete, select complete to return to the main menu.

Orientation

1. Select this menu to adjust orientation of the AS3000 if it was changed after First Time Setup.
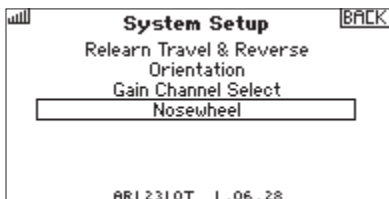
2. The same 8 orientation options remain.
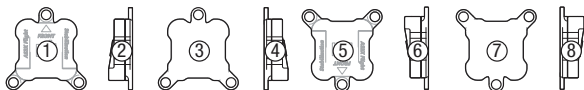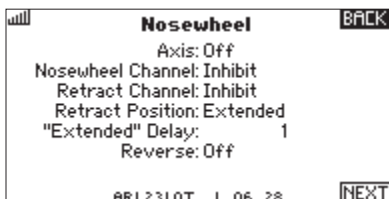

Gain Channel Select

1. Change the Gain channel that was assigned in the First Time Setup.

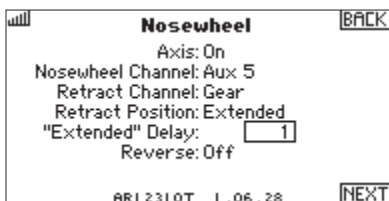2. The gain channel can be split into separate channels for Roll, Pitch and Yaw.

Nose-wheel

```
ıllıll          System Setup          BACK
          Relearn Travel & Reverse
                 Orientation
            Gain Channel Select
                 Nosewheel

            ARI2310T  1.06.28
```
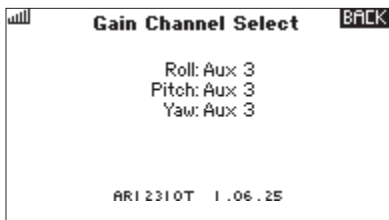
1. Select the Axis On or Off for the nose-wheel to activate or disable nose-
   wheel gain

```
ıllıll             Nosewheel          BACK
                 Axis: Off
        Nosewheel Channel: Inhibit
          Retract Channel: Inhibit
         Retract Position: Extended
          "Extended" Delay:       1
               Reverse: Off

            ARI2310T  1.06.28        NEXT
```

2. Select the nose-wheel servo channel.

3. Select the retract channel used, when the gear is retracted the gain will
   be turned off.

4. Retract Position displays the current retract position based on the
   channel and switch selected.

5. Extended Delay is used to delay the gain from activating on the nose-
   wheel until the gear is extended. This can prevent damage to the model
   when the nose-wheel is retracted or while extending. The range is 0 to
   20 seconds.

6. Retract Reverse is used to select the direction of the retract channel – if
   the nose-wheel gain is off when the gear is down and on when the gear
   is up, reverse this setting to correctly have gain on when the gear is
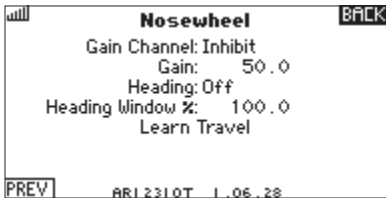   down and off when the gear is up.

```
ıllıll             Nosewheel          BACK
                 Axis: On
        Nosewheel Channel: Aux 5
          Retract Channel: Gear
         Retract Position: Extended
          "Extended" Delay:    ┌──1──┐
               Reverse: Off

            ARI2310T  1.06.28        NEXT
```

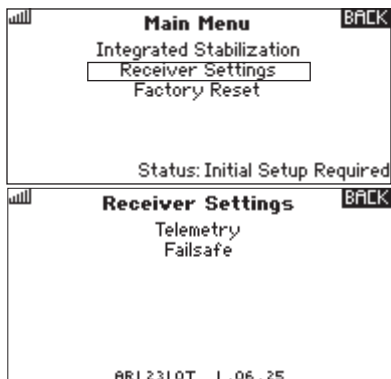7. Pressing NEXT opens further nose-wheel setup options:

Nose-wheel -Continued-

1. Gain channel can be used to select a channel to independently control the gain for the nose-wheel. This can be he same channel used for the primary flight control gains, or an independent channel.

```
.ull          Nosewheel          BACK
        Gain Channel: Gear
              Gain:    50.0
           Heading: Off
    Heading Window %:   100.0
           Learn Travel

PREV      ARI2310T  1.06.28
```
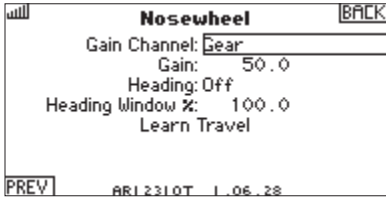
2. Heading can be turned On or Off.

3. Heading Window % is used to change the range of heading travel on the nose-wheel. This is used to reduce the heading travel only using heading hold. It does not affect overall travel, but the travel the heading hold will drive the nose-gear.

4. Gain - The maximum gain for the nose-wheel is independent of the systems yaw gain. This gain is to set the gain for the nose-wheel only.

5. Learn Travel is used to teach the receiver and AS3000 the transmitters travel settings on the nose-wheel channel. Press apply after maximizing the rates and moving the channel to the extremes.

```
.ull          Nosewheel          BACK
        Gain Channel: Inhibit
              Gain:    50.0
           Heading: Off
    Heading Window %:   100.0
           Learn Travel

PREV      ARI2310T  1.06.28
```

```
.ull          Nosewheel          BACK
    Maximize Rates for this channel.
    Move channel to both extremes,
      then select APPLY to record
         the range of travel.


              Apply
PREV      ARI2310T  1.06.28
```

11

Receiver Settings

```
Main Menu                    BACK
Integrated Stabilization
  Receiver Settings
   Factory Reset


          Status: Initial Setup Required
```

```
Receiver Settings           BACK
        Telemetry
        Failsafe




        ARI2310T   1.06.25
```

Telemetry

1. In the Receiver Settings menu, select Telemetry to activate or reset the mAh counter.

2. When the voltage meets this charged voltage, the mAh counter will be reset.

```
PowerSafe Telemetry         BACK
Automatic Reset: Active
    Capture Charged Voltage
Charged Volts A:    0.00
Charged Volts B:    7.44



        ARI2310T   1.06.25
```

Failsafe

```
Failsafe                    BACK
       Failsafe
Capture Failsafe Positions




```

```
Failsafe                    BACK
    Outputs: Throttle
    Failsafe: Bind Plug
     Custom: Hold Last
     Position:    -99%


```
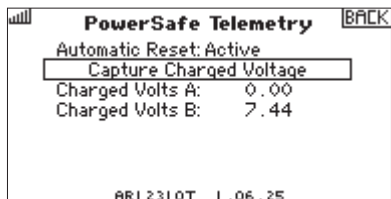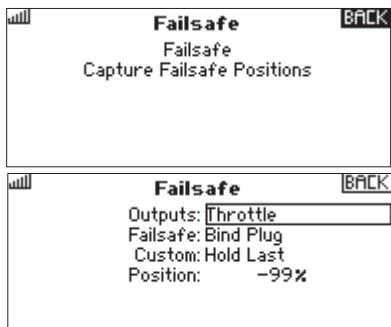
1. *Output* - The failsafe can be controlled during bind (SmartSafe + hold last or Preset) or custom.

2. *Bind Plug* - Binding will set the failsafe behavior as described in the receiver manual.

3. *Custom* - Each output can be selected to Hold Last or Preset. When selected to Hold Last, the selected output will hold the last position in the event of a failsafe. When selected to Preset, the output selected will return to the position set during bind or selected in this menu.

4. *Position* - Adjusting this value adjusts the Failsafe position for the output. This position setting is only relevant if a channel is set to Preset.

```
⊿          Failsafe          BACK
               Failsafe
        Capture Failsafe Positions



           ARI2310T  1.06.25
```
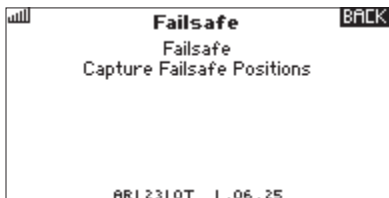
Capture Failsafe Positions

This menu will capture the current transmitter positions for each output and set them to the Failsafe positions.

Factory Reset

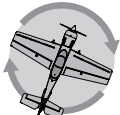Reset the receiver and AS3000 settings back to the default settings and clear all programming.
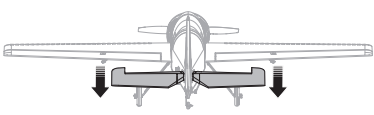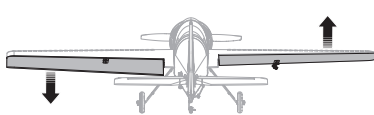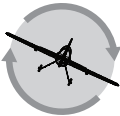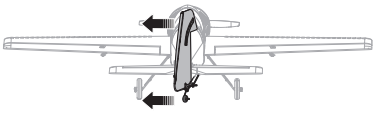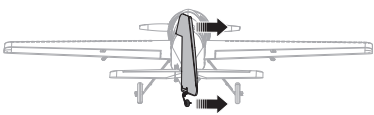
NOTICE: Performing a factory reset will clear all settings from the model.

```
⊿         Load Defaults       BACK




                Apply


           ARI2310T  1.06.25
```
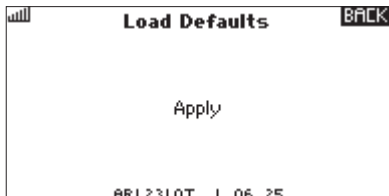
TIP: The receiver can be forced to defaults by plugging in a bind plug, and power cycling 5 times in a row. All the LEDs will start blinking simultaneously to indicate that defaults have been set. This will help reset settings in case a wrong orientation is set, and the receiver can't initialize to use to forward programming factory reset.

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AS3X Control Direction Test

Power up the aircraft. Perform the AS3X Control Direction test by lifting or tipping the aircraft as shown. Ensure the AS3X technology moves the control surfaces in their proper direction. If the control surfaces do not respond as shown, go to the Setup Mode section on the previous pages for gain reversing instructions.

Aircraft movement	AS3X Reaction
Elevator	
Aileron	
Rudder	

1-YEAR LIMITED WARRANTY

What this Warranty Covers - Horizon Hobby, LLC, (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship for a period of 1 year from the date of purchase.

What is Not Covered - This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations.
OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

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Law - These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

WARRANTY SERVICES
Questions, Assistance, and Services - Your local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or Horizon directly. This will enable Horizon to better answer your questions and service you in

the event that you may need any assistance. For questions or assistance, please visit our website at www.horizonhobby.com, submit a Product Support Inquiry at https://horizonhobby.quickbase.com/db/bghj7ey8c?a=GenNewRecord, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

Inspection or Services - If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. An Online Service Request is available at http://www.horizonhobby.com/content/_service-center_render-service-center. If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton. Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

NOTICE: Do not ship LiPo batteries to Horizon. If you have any issue with a LiPo battery, please contact the appropriate Horizon Product Support office. Warranty Requirements - For Warranty consideration, you must include your original sales receipt verifying the proof-of-purchase date.

Non-Warranty Service - Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost. By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashier's checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizon's Terms and Conditions found on our website http://www.horizonhobby.com/content/_service-center_render-service-center.

ATTENTION: Horizon service is limited to Product compliant in the country of use and ownership. If received, a non-compliant Product will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.

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Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	4105 Fieldstone Rd Champaign, Illinois, 61822 USA
	Horizon Product Support (Product Technical Assistance)	productsupport@horizonhobby.com.	
		877-504-0233	
	Sales	websales@horizonhobby.com	
		800-338-4639	
EU	Horizon Technischer Service	service@horizonhobby.eu	Hanskampring 9 D 22885 Barsbüttel, Germany
	Sales: Horizon Hobby GmbH	+49 (0) 4121 2655 100	

Compliance Information for the European Union

Horizon Hobby, LLC hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive.
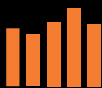
A copy of the EU Declaration of Conformity is available online at:
http://www.horizonhobby.com/content/support-render-compliance.

Instructions for Disposal of WEEE by Users in the European Union

This product must not be disposed of with other waste. Instead, it is the user's responsibility to dispose of their waste equipment by handing it over to a de-signated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or where you purchased the product.

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