

**SPEKTRUM**

Leaders in Spread Spectrum Technology

**5-Channel Full Range  
DSM2™ 2.4GHz Radio System**



# TABLE OF CONTENTS

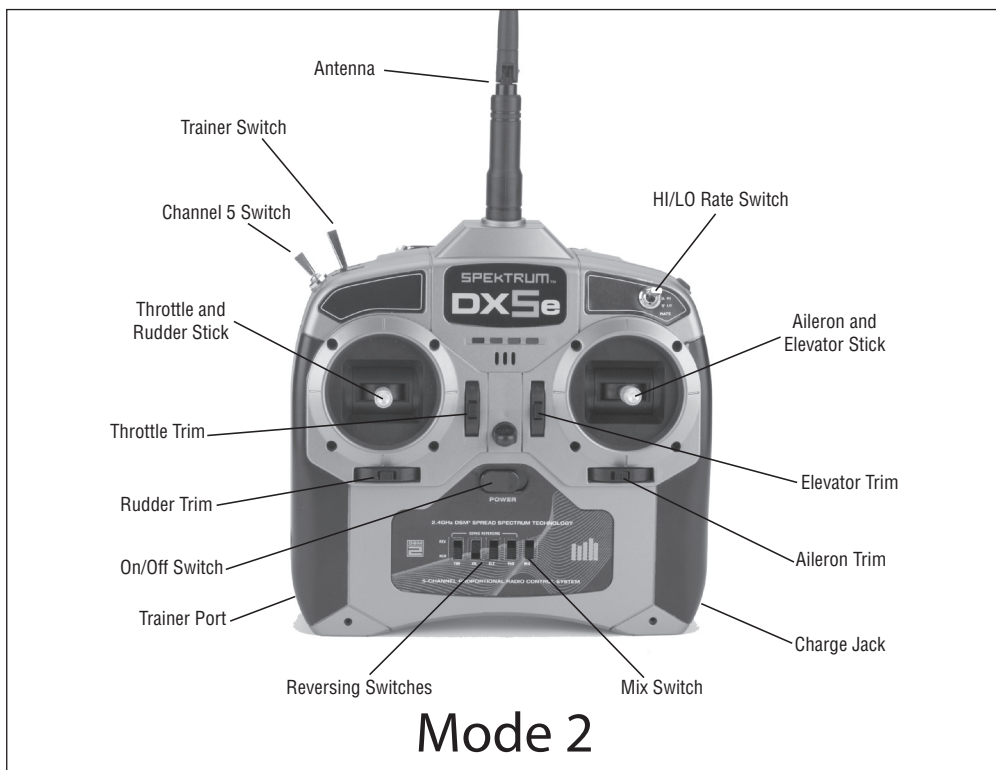
Spektrum's DX5e 5-channel DSM2 Full Range System .....	2
DSM2 DualLink® Technology .....	4
Receiver Compatibility .....	4
Installing the Transmitter Batteries.....	5
Charging Batteries.....	5
Digital Trims.....	6
Low Battery Alarm .....	6
Trainer .....	7
Receiver Installation.....	7
Binding.....	8
How to Range Test the DX5e.....	9
AR500 Failsafe .....	10
HOW AR500 FAILSAFE WORKS.....	10
Servo Reversing.....	10
Hi/Lo Rate.....	10
Elevon/ Delta mixing .....	11
Receiver Power System Requirements .....	11
Tips on Using 2.4GHz Systems .....	12
General Information .....	13
Warranty Information.....	15
Instructions for Disposal of WEEE by Users in the European Union.....	17
Optional Accessories.....	18

# SPEKTRUM'S DX5E 5-CHANNEL DSM2 FULL RANGE SYSTEM

Spektrum's DX5e 5-channel system incorporates 2.4GHz DSM2 technology offering full beyond-the-limits-of-sight range and is ideal for sport-sized electric, gas and glow-powered 5-channel or fewer airplanes. No longer will you have to wait for a frequency pin or be concerned that someone may inadvertently turn on to your same frequency. With Spektrum DSM2 technology, when you're ready to fly simply turn on, and go flying!



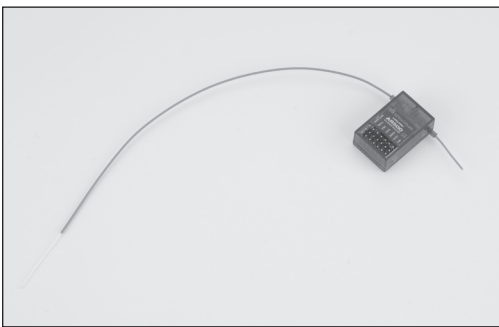
# TRANSMITTER CONTROL IDENTIFICATION



## DSM2 DUALINK® TECHNOLOGY

Your DX5e transmits on the 2.4GHz band and utilizes DSM2™ second-generation Digital Spread Spectrum Modulation, giving beyond-visual range in all types and sizes of aircraft. Unlike conventional narrow band systems, Spektrum's 2.4GHz digital DualLink technology is virtually immune to internal and external radio interference.

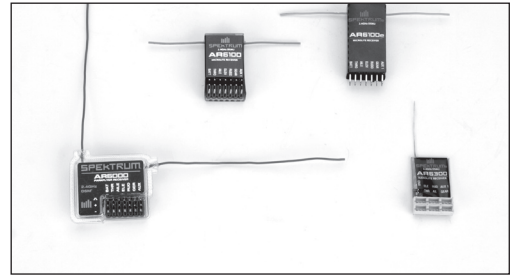
Included with your DX5e is an AR500 5-channel full-range sport receiver. The DX5e transmitter simultaneously transmits on two frequencies and the AR500 receives both frequencies, creating dual RF paths. This dual path redundancy creates a bulletproof RF link. The AR500 features two aileron outputs making it convenient when using airplanes with two aileron servos.



## RECEIVER COMPATIBILITY

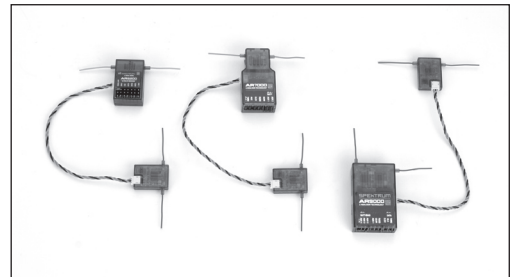
The DX5e is compatible with all current Spektrum™ and JR® brands of DSM® aircraft receivers. However, when using the DX5e with one of the Spektrum park flyer receivers, like the AR6000, AR6100, AR6100E, etc., it is imperative that these receivers be limited to flying Parkflyer-type aircraft.

### PARK FLYER RECEIVERS

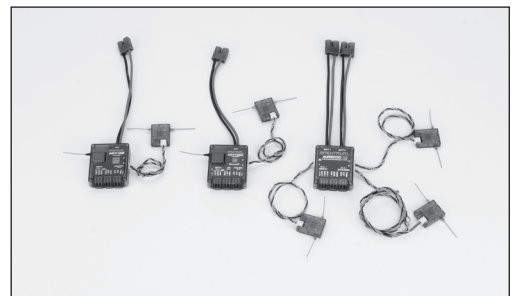


- AR6000
- AR6100
- AR6100E
- AR6300

### FULL RANGE DSM2 AIRCRAFT RECEIVERS



- AR6200
- AR7000
- AR9000



- AR7100
- AR7100R
- AR9100

## INSTALLING THE TRANSMITTER BATTERIES

The DX5e requires 4 heavy duty or alkaline AA batteries.

### BATTERY INSTALLATION



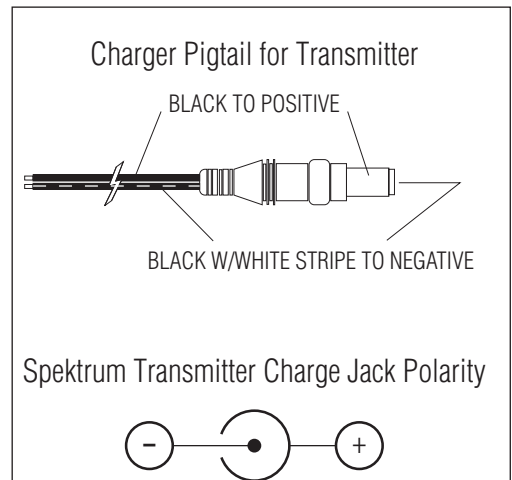
Remove the battery door and install 4 AA batteries. Make sure the polarity of each corresponds with the diagram in the battery holder. Replace the battery door.

**Note:** Optional NiCd or NiMH 1.2-volt AA rechargeable batteries can also be used. A charge jack is located on the right side of the transmitter for convenient recharging. Spektrum offers optional replacement NiMH rechargeable batteries, part number SPM9525.

## CHARGING BATTERIES

If using rechargeable batteries (optional), it is imperative that you fully charge the transmitter prior to each flying session. To do so, using the optional wall charger, leave the charger and batteries connected overnight (16 hours).

The optional charger (SPM9526) is designed to recharge your batteries at a rate of 150mA for the transmitter and 150mA for the receiver battery pack. Do not use this charger for equipment other than Spektrum transmitters that use 4-cell battery packs. The charging plug polarity may not be the same and equipment damage can result. During the charging operation, the charger's temperature is slightly elevated. This is normal.



A charging jack is located on the right side of the transmitter. If rechargeable batteries are used they can be conveniently charged without removing them from the transmitter using the charge jack.

**IMPORTANT:** All Spektrum charge jacks are center-pin negative. This is the opposite of many chargers. Before using a charger make sure the connector is center-pin negative. This can be done using a voltmeter. Also unlike conventional radio systems that use 8 cells to power the transmitter, the DX5e uses 4 cells. This is due to the electronics being more efficient. When charging, be sure to use a charger designed for a 4-cell 4.8-volt battery pack when charging the transmitter.

## TRANSMITTER POLARITY

The center pin on all Spektrum transmitters is negative. Therefore, the center pin on all Spektrum chargers is negative, not positive. This is different from many other manufacturers' chargers and radio systems. Beware of improper connections based on "color coded" wire leads, as they may not apply in this instance. You must make sure that the center pin of your Spektrum transmitter is always connected to the negative voltage of your charger for correct polarity hookup.

## DIGITAL TRIMS

The DX5e features digital trims. Each time a trimmer is moved the servo output will change one step. If the trimmer is held, the output will scroll in that direction until the trimmer is released or the output reaches its end.



## LOW BATTERY ALARM

When the battery voltage drops below 4.7 volts, an alarm will sound and the voltage LEDs will flash.

## TRAINER

The DX5e offers a trainer function that allows the transmitter to operate as a master or slave. The trainer switch is located on the back left of the transmitter. When using the trainer function, plug the trainer cord (SPM6805) into the trainer port in both the master (controlling) and the slave (training) transmitters. The master transmitter must have the power turned on and the slave transmitter must have the power turned off.

**Note:** The DX5e trainer system is compatible with all JR and Spektrum transmitters.

## MASTER

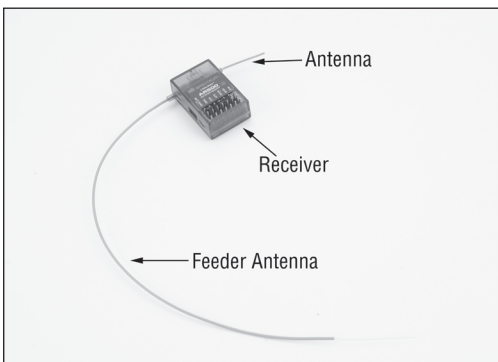
The DX5e transmitter can be used as a master but the slave transmitter must have the same programming (i.e. reverse switch positions) as the master.

## SLAVE

When using the DX5e transmitter as a slave with another DX5e, it's necessary to match all the reverse switch positions.

## RECEIVER INSTALLATION

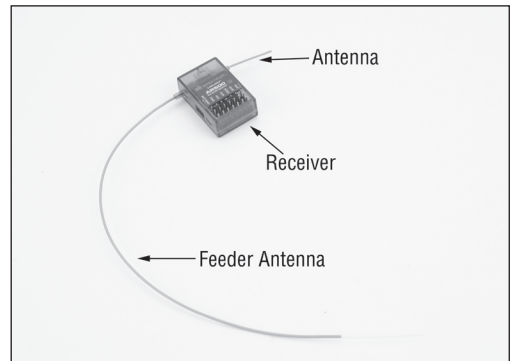
The AR500 incorporates dual receiver antennas, offering the security of dual path RF redundancy. By locating these antennas in slightly different locations in the aircraft, each antenna is exposed to its own RF environment, greatly improving path diversity (the ability for the receiver to see the signal in all conditions). The receiver features two aileron outputs making it convenient when installing the receiver in airplanes that have two aileron servos.



## RECEIVER INSTALLATION

Install the receiver using the same method you would use to install a conventional receiver in your aircraft. Typically, wrap the receiver in protective foam and fasten it in place using rubber bands or hook and loop straps. Alternately, in electric models, it's acceptable to use thick double-sided foam tape to fasten the main receiver in place.

Mount the antennas such that the tip of the feeder (long) antenna is perpendicular (90 degrees) to the short antenna and the antennas are at least 2 inches apart. Essentially, each antenna sees a different RF environment and this is key to maintaining a solid RF link.

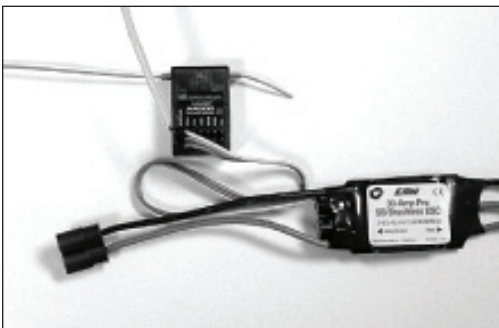
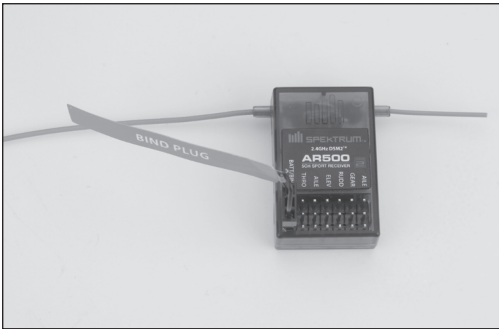


# BINDING

The AR500 receiver must be bound to the transmitter before it will operate. Binding is the process of teaching the receiver the specific code of the transmitter so it will only connect to that specific transmitter.

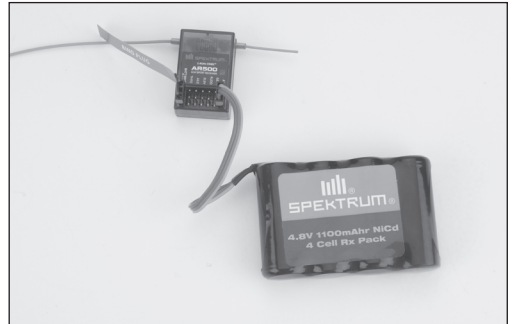
**Note:** RTF and Radio Systems are pre-bound at the factory. Rebinding is necessary if any settings are changed to ensure proper failsafe settings are achieved.

1. To bind an AR500 to a DSM2 transmitter, insert the BATT/BIND port in the charge plug receptacle.



**Note:** To bind an aircraft with an electronic speed controller that powers the receiver through the throttle channel (ESC/BEC), insert the bind plug into the BATT/BIND port in the receiver and the throttle lead into the throttle port. Proceed to Step #2.

2. Power the receiver by plugging in a receiver battery in any port on the receiver. Note that the LED on the receiver should be flashing, indicating that the receiver is in bind mode and ready to be bound to the transmitter.



Shown above using a separate receiver pack

**Note:** When binding using a switch harness and separate receiver pack, a three-wire switch harness must be used such as SPM9530. (Not shown) You may need to purchase the Male/Female bind plug SPM6803 in addition to the switch harness.



Shown above using an ESC/BEC and a flight pack

3. Move the sticks and switches on the transmitter to the desired AR500 failsafe positions (low throttle and neutral control positions).





4. Pull and hold the trainer switch on the top of the transmitter while turning on the power switch. The LEDs on the front of the transmitter will flash, within a few seconds the system should connect. Once connected the LED on the receiver will go solid indicating the system is connected. Upon connection, release the trainer switch.



5. Remove the bind plug from the BATT/BIND port on the receiver before you power off the receiver and store it in a convenient place.
6. After you've set up your model, it's important to rebind the system so the true low throttle and neutral control surface positions are programmed.

## HOW TO RANGE TEST THE DX5E

Before each flying session, and especially with a new model, it is important to perform a range check. The DX5e incorporates a range testing system which, when placed in the RANGE CHECK mode with the trainer switch activated and held, reduces the output power, allowing a range check.

### RANGE TESTING THE DX5E

1. With the model restrained on the ground, stand 30 paces (approx. 90 feet/28 meters) away from the model.

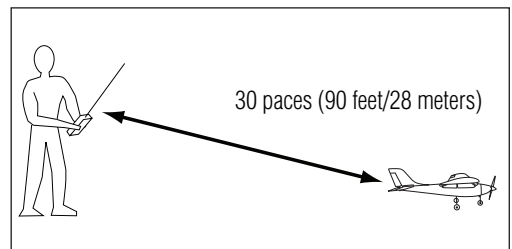
**Note:** Prior to performing the range check ensure the correct failsafe stick positions are established.

2. Face the model with the transmitter in your normal flying position. Pull and hold the trainer switch while toggling the HI/LO Rate Switch four times. The LEDs will flash and the alarm will sound indicating the system is in range check mode.

**Note:** The trainer switch must be held the entire time during the range check process; releasing the trainer switch will exit the range check mode.



3. You should have total control of the model with the trainer switch pulled at 30 paces (90 feet/28 meters).
4. If control issues exist, call the Horizon Product Support Team at 1 877 504 0233 or go to **horizonhobby.com** to find a local Spektrum distributor for service in your country.



## AR500 FAILSAFE

- Prevents unintentional electric motor response on start-up.
- Eliminates the possibility of over-driving servos on start-up.
- Establishes low-throttle failsafe if the RF signal is lost.
- The AR500 removes servo output pulses to all channels except the throttle channel during failsafe.
- The AR500 throttle failsafe position is stored via the throttle stick position on the transmitter.

## HOW AR500 FAILSAFE WORKS

### RECEIVER POWER ONLY

- In electric aircraft, when the receiver only is turned on (no transmitter signal is present), the throttle channel has no output, to avoid operating or arming the electronic speed control.
- In glow-powered models, the throttle servo receives no input so it remains in its current position.

**Note:** Some analog servos will coast slightly even though there is no signal present. This is normal.

- All other channels will move to the positions set during binding

### AFTER CONNECTION

- When the transmitter is turned on, and after the receiver connects to the transmitter, normal control of all channels occurs.
- After the system makes a connection, if loss of signal occurs, the AR500 failsafe drives the throttle servo only to its preset failsafe position (low throttle) that was set during binding.
- All other channels receive no output pulses/ commands, and are not active during failsafe.

## SERVO REVERSING

The DX5e features servo reversing on channels 1-4. The switches are located at the lower front of the transmitter and are used to select the direction of each channel. Use a small screwdriver to change the switch position to normal or reverse.



## HI/LO RATE

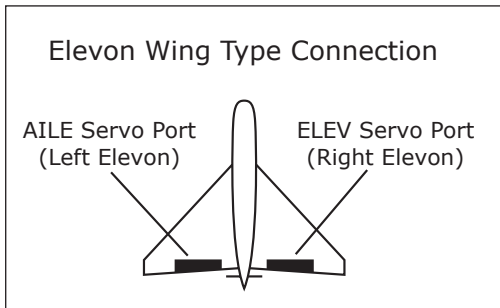
The DX5e offers a high/low rate function on aileron, elevator and rudder. When the HI/LO rate switch is in the upper position or "HI" position, 100% travel is achieved on the aileron, elevator and rudder channels. When the switch is in the lower position a reduced travel of 70% is achieved on the aileron, elevator and rudder channels. This is useful allowing the aircraft to have a high control rate (switch in the "HI" position) for aggressive maneuvers and a low control rate (switch in "LO" position) for smooth, precise maneuvers.



- High 100% rate on aileron, elevator and rudder
- Low 70% rate on aileron, elevator and rudder

## ELEVON/ DELTA MIXING

The DX5e offers an Elevon mix. Elevon (also called delta wing) mixing combines the function of ailerons with the function of the elevator to allow precise control of both roll and pitch for delta wing aircraft. To activate the Elevon mix, move the mix switch to the on (up) position.



- ELEV servo port (right aileron)
- AILE servo port (left aileron)

**Note:** If proper servo direction cannot be achieved with the servo reversing switches, swap the servo input leads from AILE to ELEV or vice versa.

## RECEIVER POWER SYSTEM REQUIREMENTS

With all radio installations, it is vital the onboard power system provides adequate power without interruption to the receiver even when the system is fully loaded (servos at maximum flight loads). This becomes especially critical with giant-scale models that utilize multiple high-torque/ high-current servos. Inadequate power systems that are unable to provide the necessary minimum voltage to the receiver during flight loads have become the number-one cause of in-flight failures. Some of the power system components that affect the ability to properly deliver adequate power include: the selected receiver battery pack (number of cells, capacity, cell type, state of charge), switch harness, battery leads, regulator (if used) and, unless it's a regulator, power bus (if used).

While a Spektrum receiver's minimum operational voltage is 3.5 volts, it is highly recommended the system be tested per the guidelines below to a minimum acceptable voltage of 4.8 volts during ground testing. This will provide head room to compensate for battery discharging or if the actual flight loads are greater than the ground test loads.

## RECOMMENDED POWER SYSTEM GUIDELINES

1. When setting up large or complex aircraft with multiple high-torque servos, it's highly recommended that a current and voltmeter (Hangar 9 HAN172) be used. Plug the voltmeter in an open channel port in the receiver and, with the system on, load the control surfaces (apply pressure with your hand) while monitoring the voltage at the receiver. The voltage should remain above 4.8 volts even when all servos are heavily loaded.
2. With the current meter in line with the receiver battery lead, load the control surfaces (apply pressure with your hand) while monitoring the current. The maximum continuous recommended current for a single heavy-duty servo/battery lead is three amps while short-duration current spikes of up to five amps are acceptable. Consequently, if your system draws more than three amps continuous or five amps for short durations, a single battery pack with a single switch harness plugged into the receiver for power will be inadequate. It will be necessary to use multiple packs with multiple switches and multiple leads plugged into the receiver.

3. If using a regulator, it's important the above tests are done for an extended period of 5 minutes. When current passes through a regulator, heat is generated. This heat causes the regulator to increase resistance, which in turn causes even more heat to build up (thermal runaway). While a regulator may provide adequate power for a short duration, it's important to test its ability over time as the regulator may not be able to maintain voltage at significant power levels.
4. For really large aircraft or complex models (for example 35% and larger or jets), multiple battery packs with multiple switch harnesses are necessary or in many cases one of the commercially available power boxes/busses is recommended. No matter what power systems you choose, always carry out test #1 above making sure that the receiver is constantly provided with 4.8 volts or more under all conditions.
5. The latest generation of Nickel-Metal Hydride batteries incorporates a new chemistry mandated to be more environmentally friendly. These batteries, when charged with peak detection fast chargers, have a tendency to false peak (not fully charge) repeatedly. These include all brands of NiMH batteries. If using NiMH packs be especially cautious when charging making absolutely sure that the battery is fully charged. It is recommended to use a charger that can display total charge capacity. Note the number of mAh put into a discharged pack to verify it has been charged to full capacity.

## TIPS ON USING 2.4GHZ SYSTEMS

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Your DSM2 equipped 2.4GHz system is intuitive to operate, functioning nearly identically to FM systems. Following are a few common questions from customers:

1. Q: Which do I turn on first, the transmitter or the receiver?  
A: It doesn't matter, although it is suggested to turn the transmitter on first. If the receiver is turned on first, the throttle channel doesn't put out a pulse position at this time, preventing the arming of electronic speed controllers, or in the case of an engine powered aircraft, the throttle servo remains in its current position. When the transmitter is then turned on the transmitter scans the 2.4GHz band and acquires two open channels. Then the receiver that was previously bound to the transmitter scans the band and finds the GUID (Globally Unique Identifier code) stored during binding. The system then connects and operates normally. If the transmitter is turned on first, the transmitter scans the 2.4GHz band and acquires two open channels. When the receiver is turned on, the receiver scans the 2.4GHz band looking for the previously stored GUID. When it locates the specific GUID code and confirms uncorrupted repeatable packet information, the system connects and normal operation takes place. Typically this takes 2 to 6 seconds.
2. Q: Sometimes the system takes longer to connect and sometimes it doesn't connect at all. Why?  
A: In order for the system to connect (after the receiver is bound), the receiver must receive a large number of continuous (one after the other) uninterrupted perfect packets from the transmitter. This process is purposely critical of the environment ensuring that it's safe to fly when the system does connect. If the transmitter is too close to the receiver (less than 4 feet) or if the transmitter is located near metal objects (metal transmitter case, the bed of a truck, the top of a metal work bench, etc.) connection will take longer. In some cases connection will not occur as the system is receiving reflected 2.4GHz energy from itself and is interpreting this as unfriendly noise. Moving the system away from metal objects or moving the transmitter away from the receiver and powering the system up again will cause a connection to occur. This only happens during the initial connection. Once connected the system is locked, and should a loss of signal occur (failsafe), the system connects immediately (4ms) when signal is regained.

3. Q: I've heard that the DSM system is less tolerant of low voltage. Is this correct?

A: All DSM receivers have an operational voltage range of 3.5 to 9 volts. With most systems this is not a problem as in fact most servos cease to operate at around 3.8 volts. When using multiple high-current draw servos with a single or inadequate battery/ power source, heavy momentary loads can cause the voltage to dip below this 3.5-volt threshold causing the entire system (servos and receiver) to brown out. When the voltage drops below the low voltage threshold (3.5 volts), the DSM receiver must reboot (go through the start up process of scanning the band and finding the transmitter) and this can take several seconds.

4. Q: Sometimes my receiver loses its bind and won't connect, requiring rebinding. What happens if the bind is lost in flight?

A: The receiver will never lose its bind unless it's instructed to. It's important to understand that during the binding process the receiver not only learns the GUID (code) of the transmitter but the transmitter learns and stores the type of receiver that it's bound to. If the trainer switch is pulled on the transmitter at any time and the transmitter is turned on, the transmitter looks for the binding protocol signal from a receiver. If no signal is present, the transmitter no longer has the correct information to connect to a specific receiver and in essence the transmitter has been "unbound" from the receiver. We've had several customers using transmitter stands or trays that unknowingly depress the bind button. The system is then turned on, losing the necessary information to allow the connection to take place. We've also had customers that didn't fully understand the range test process and pull the trainer switch before turning on the transmitter, also causing the system to "lose its bind." If the system fails to connect, one of the following has occurred:

- The transmitter is near conductive material (transmitter case, truck bed, etc.) and the reflected 2.4GHz energy is preventing the system from connecting. (See #2 above)
- The trainer switch was pulled and the radio was previously turned on knowingly (or unknowingly), causing the transmitter to no longer recognize the receiver.

## GENERAL INFORMATION

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### FCC Information

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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, and (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.

### Servo Precautions

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- Do not lubricate servo gears or motors.
- Do not overload retract servos during retracted or extended conditions. Make sure they are able to travel their full deflection. Overloading or stalling a servo can cause excessive current drain.
- Make sure all servos move freely through their rotations and no linkages hang up or bind. A binding control linkage can cause a servo to draw excessive current. A stalled servo can drain a battery pack in a matter of minutes.
- Correct any control surface "buzz" or "flutter" as soon as it is noticed in flight, as this condition can destroy the feedback potentiometer in the servo. It may be extremely dangerous to ignore such "buzz" or "flutter."
- Use the supplied rubber grommets and brass servo eyelets when mounting your servos. Do not over-tighten the servo mounting screws, as this negates the dampening effect of the rubber grommets.
- Ensure the servo horn is securely fastened to the servo. Use only the servo arm screws provided; the size is different from other manufacturers.
- Discontinue to use servo arms when they become "yellowed" or discolored. Such servo arms may be brittle and can snap at any time, possibly causing the aircraft to crash.
- Check all related mounting screws and linkages frequently. Aircraft often vibrate, causing linkages and screws to loosen.

## General Notes

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Radio controlled models are a great source of pleasure. Unfortunately, they can also pose a potential hazard if not operated and maintained properly.

It is imperative to install your radio control system correctly. Additionally, your level of piloting competency must be high enough to ensure that you are able to control your aircraft under all conditions. If you are a newcomer to radio controlled flying, please seek help from an experienced pilot or your local hobby store.

## Safety Do's and Don'ts for Pilots

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- Ensure that your batteries have been properly charged prior to your initial flight.
- Keep track of the time the system is turned on so you will know how long you can safely operate your system.
- Perform a ground range check prior to the initial flight of the day. See the "Daily Flight Checks Section" for information.
- Check all control surfaces prior to each takeoff.
- Do not fly your model near spectators, parking areas or any other area that could result in injury to people or damage of property.
- Do not fly during adverse weather conditions. Poor visibility can cause disorientation and loss of control of your aircraft. Strong winds can cause similar problems.
- Do not point the transmitter antenna directly toward the model. The radiation pattern from the tip of the antenna is inherently low.
- Do not take chances. If at any time during flight you observe any erratic or abnormal operation, land immediately and do not resume flight until the cause of the problem has been ascertained and corrected. Safety can never be taken lightly.

## Federal Aviation Administration

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### Purpose

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This advisory outlines safety standards for operations of model aircraft. We encourage voluntary compliance with these standards.

### Background

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Attention has been drawn to the increase in model aircraft operation. There is a need for added caution when operating free flight and radio controlled craft in order to avoid creating a noise nuisance or a potential hazard to full-scale aircraft and persons and/or property on the surface.

### Operating Standards

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Modelers generally are concerned with safety and exercise good judgment when flying model aircraft. However, in the interest of safer skies, we encourage operators of radio controlled and free flight models to comply with the following standards:

- a. Exercise vigilance in locating full-scale aircraft (get help if possible) so as not to create a collision hazard.
- b. Select an operating site at sufficient distance from populated areas so you do not create a noise problem or a potential hazard.
- c. Do not fly higher than 400 feet above the surface.
- d. Always operate more than three miles from the boundary of an airport unless you are given permission to be closer by the appropriate air traffic control facility in the case of an airport for which a control zone has been designated or by the airport manager in the case of other airports.
- e. Do not hesitate to ask for assistance in complying with these guidelines at the airport traffic control tower or air route traffic control center nearest the site of your proposed operation.

### Information Provided By

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Director, Air Traffic Service Federal Aviation Administration, Washington, D.C.

## Daily Flight Checks

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1. Check the battery voltage on both the transmitter and the receiver battery packs. Do not fly below 4.7V on the transmitter or below 4.7V on the receiver. To do so can crash your aircraft.

**Note:** When you check these batteries, ensure that you have the polarities correct on your expanded scale voltmeter.

2. Check all hardware (linkages, screws, nuts, and bolts) prior to each day's flight. Be sure that binding does not occur and that all parts are properly secured.
3. Ensure that all surfaces are moving in the proper manner.
4. Perform a ground range check before each day's flying session.
5. Prior to starting your aircraft, turn off your transmitter, then turn it back on. Do this each time you start your aircraft. If any critical switches are on without your knowledge, the transmitter alarm will warn you at this time.
6. Check that all trim levers are in the proper location.
7. All servo pigtails and switch harness plugs should be secured in the receiver. Make sure that the switch harness moves freely in both directions.

## WARRANTY INFORMATION

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### Warranty Period

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Horizon Hobby, Inc., (Horizon) warrants that the Products purchased (the "Product") will be free from defects in materials and workmanship at the date of purchase by the Purchaser.

### Limited Warranty

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(a) This warranty is limited to the original Purchaser ("Purchaser") and is not transferable. REPAIR OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER. This warranty covers only those Products purchased from an authorized Horizon dealer. Third party transactions are not covered by this warranty. Proof of purchase is required for warranty claims. Further, Horizon reserves the right to change or modify this warranty without notice and disclaims all other warranties, express or implied.

(b) Limitations- HORIZON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCT. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASER'S INTENDED USE.

(c) Purchaser Remedy- Horizon's sole obligation hereunder shall be that Horizon will, at its option, (i) repair or (ii) replace, any Product determined by Horizon to be defective. In the event of a defect, these are the Purchaser's exclusive remedies. Horizon reserves the right to inspect any and all equipment involved in a warranty claim. Repair or replacement decisions are at the sole discretion of Horizon. This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product. This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Horizon. Return of any goods by Purchaser must be approved in writing by Horizon before shipment.

## Damage Limits

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HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCT, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability.

If you as the Purchaser or user are not prepared to accept the liability associated with the use of this Product, you are advised to return this Product immediately in new and unused condition to the place of purchase.

Law: These Terms are governed by Illinois law (without regard to conflict of law principals).

## Safety Precautions

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This is a sophisticated hobby Product and not a toy. 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. The Product 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 injury.

## Questions, Assistance and Repairs

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Your local hobby store and/or place of purchase cannot provide warranty support or repair. Once assembly, setup or use of the Product has been started, you must contact 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 direct your email to [productsupport@horizonhobby.com](mailto:productsupport@horizonhobby.com), or call 877.504.0233 toll free to speak to a Product Support.

## Inspection or Repairs

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If this Product needs to be inspected or repaired, please call for a Return Merchandise Authorization (RMA). 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.** A Service Repair Request is available at [www.horizonhobby.com](http://www.horizonhobby.com) on the "Support" tab. If you do not have internet access, please include a letter with your complete name, street address, email address and phone number where you can be reached during business days, your RMA number, a list of the included items, method of payment for any non-warranty expenses and a brief summary of the problem. Your original sales receipt must also be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

## Warranty Inspection and Repairs

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**To receive warranty service, you must include your original sales receipt** verifying the proof-of-purchase date. Provided warranty conditions have been met, your Product will be repaired or replaced free of charge. Repair or replacement decisions are at the sole discretion of Horizon Hobby.

## Non-Warranty Repairs

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**Should your repair not be covered by warranty the repair 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 repair you are agreeing to payment of the repair without notification. Repair estimates are available upon request. You must include this request with your repair. Non-warranty repair estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Please advise us of your preferred method of payment. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards.

If you choose to pay by credit card, please include your credit card number and expiration date. Any repair left unpaid or unclaimed after 90 days will be considered abandoned and will be disposed of accordingly. **Please note: non-warranty repair is only available on electronics and model engines.**



## UNITED STATES

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Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Service Center  
4105 Fieldstone Road  
Champaign, Illinois 61822

All other products requiring warranty inspection or repair should be shipped to the following address:

Horizon Support Team  
4105 Fieldstone Road  
Champaign, Illinois 61822

Please call 877.504.0233 or e-mail us at [productsupport@horizonhobby.com](mailto:productsupport@horizonhobby.com) with any questions or concerns regarding this product or warranty.

## UNITED KINGDOM

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Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Hobby UK  
Units 1-4 Ployters Rd  
Staple Tye  
Southern Way  
Harlow  
Essex CM18 7NS  
United Kingdom

Please call +44 1279 641 097 or [sales@horizonhobby.co.uk](mailto:sales@horizonhobby.co.uk) with any questions or concerns regarding this product or warranty.

## GERMANY

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Electronics and engines requiring inspection or repair should be shipped to the following address:

Horizon Technischer Service  
Otto Hahn Str. 9a  
25337 Elmshorn  
Germany

Please call +49 4121 46199 66 or [service@horizonhobby.de](mailto:service@horizonhobby.de) with any questions or concerns regarding this product or warranty.

**USA: Please call 1 877 504 0233 or visit [horizonhobby.com](http://horizonhobby.com) to find our distributor for your country for support with any questions or concerns regarding this product or warranty.**

**UK: Please call +44 1279 641 097 or [sales@horizonhobby.co.uk](mailto:sales@horizonhobby.co.uk) with any questions or concerns regarding this product or warranty.**

**Germany: Please call +49 4121 46199 66 or [service@horizonhobby.de](mailto:service@horizonhobby.de) with any questions or concerns regarding this product or warranty.**

## INSTRUCTIONS FOR DISPOSAL OF WEEE BY USERS IN THE EUROPEAN UNION

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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 designated 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.



## OPTIONAL ACCESSORIES

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### BATTERIES

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SPM9520.....	1100MAH 4.8V NICD RECEIVER PACK
SPM9525.....	1500MAH NI-MH AA 4PK
SPMB1500NM.....	1500MAH 4.8V NIMH RECEIVER PACK
SPMB1650NM.....	1650MAH 6.0V NIMH RECEIVER PACK
SPMB2150NM.....	2150MAH 6.0V NIMH RECEIVER PACK
SPMB2700NM.....	2700MAH 6.0V NIMH RECEIVER PACK
SPMB4500NM.....	4500MAH 6.0V NIMH RECEIVER PACK

### CHARGERS

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SPM9526.....	150MA WALL CHARGER W/TX ADAPTER
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### REMOTE RECEIVER EXTENSIONS

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SPM9010.....	REMOTE RECEIVER EXTENSION 6-INCH
SPM9011.....	REMOTE RECEIVER EXTENSION 9-INCH
SPM9012.....	REMOTE RECEIVER EXTENSION 12-INCH
SPM9013.....	REMOTE RECEIVER EXTENSION 24-INCH
SPM9014.....	REMOTE RECEIVER EXTENSION 36-INCH

## SERVOS & SERVO ACCESSORIES

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SPMDSP.....	DIGITAL SERVO PROGRAMMER
SPMDSP60.....	6.0G SUPER SUB-MICRO DIGITAL PROGRAMMABLE SERVO
SPMDSP60J.....	6.0G SUPER SUB-MICRO DIGITAL PROGRAMMABLE SERVO JST
SPMDSP601.....	GEAR SET DSP60
SPMDSP602.....	CASE SET DSP60
SPMDSP603.....	STD ARM SET W/SCREWS, FINE SPLINE DSP60
SPMDSP604.....	3D ARM SET W/SCREWS, FINE SPLINE DSP60
SPMDSP75.....	7.5GM SUPER SUB-MICRO DIGITAL PROGRAMMABLE SERVO
SPMDSP751.....	GEAR SET DSP75
SPMDSP752.....	CASE SET DSP75
SPMDSP753.....	STD ARM SET W/SCRWS FINE SPLINE DSP75
SPMDSP754.....	3D ARM SET W/SCREW FINE SPLINE DSP75

### VOLTAGE REGULATORS & ACCESSORIES

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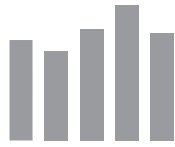
SPMVR5203.....	VR5203 DUAL OUTPUT REGULATOR
SPMVR6010.....	VR6010 VOLTAGE REGULATOR 10A, 6V
SPM6820.....	SOFT SWITCH: AR9100, VR6010
SPM6821.....	CHARGEADAPT: VR6010, AR7100/R
SPM6822.....	COOLING FAN: VR6010

### SWITCH HARNESSES

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SPM9530.....	3 WIRE SWITCH HARNESS
SPM9531.....	DUAL I/O 3 WIRE SWITCH HARNESS





# SPEKTRUM®

Leaders in Spread Spectrum Technology

# HORIZON

H O B B Y

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4105 Fieldstone Road  
Champaign, Illinois 61822  
(877) 504-0233

UK Address:  
Horizon Hobby UK  
Units 1-4 Ployters Rd  
Staple Tye  
Southern Way  
Harlow  
Essex CM18 7NS  
United Kingdom+44 1279 641 097  
[www.horizonhobby.co.uk](http://www.horizonhobby.co.uk)

German Address:  
Horizon Deutschland GmbH  
Otto Hahn Strasse 9A  
Elmshorn, Germany  
+49 4121 46199 60  
[www.horizonhobby.de](http://www.horizonhobby.de)

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