SPEKTRUM

The Leader in Spread Spectrum Technology

DX8

Instruction Manual
Bedienungsanleitung
Manuel d'utilisation
Manuale di istruzioni
Manual de Instrucciones

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SPEKTRUM

The Leader in Spread Spectrum Technology

DX8

Instruction Manual

8-Channel DSM Radio System with Integrated Telemetry for Airplanes and Helicopters

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NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon H
For up to date product literature, visit http://www.horizonhobby.com/ProdInfo/Files/SPM8800-manual.pdf.

Meaning of Special Language:

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

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

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

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

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

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

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The DX8 is Spektrum's first aircraft system that incorporates integrated telemetry. The transmitter's screen displays real-time telemetry including receiver battery voltage, flight log data and signal quality. External sensors allow rpm, external voltage and temperature to be displayed on screen in real time. Alarms can be programmed to warn of low battery, over temperature, exceeded rpm and diminished RF signal strength.
The DX8 offers sophisticated programming to meet the demands of even the most experienced airplane and helicopter pilots. An easy-to-use rolling selector combined with intuitive software makes setting up models quick and easy. The DX8 is SD-card compatible allowing an infinite number of models to be stored and transferred. Plus firmware updates can be downloaded from the SPEKTRUMRC.com website providing the user with the latest software upgrades.

- t Integrated Telemetry
- t Quad Bearing Gimbals
- t High Speed 11ms frame rate
- t 2048 resolution
- t Telemetry warning system
- t Sophisticated Airplane and Helicopter programming
- t SD Card compatible

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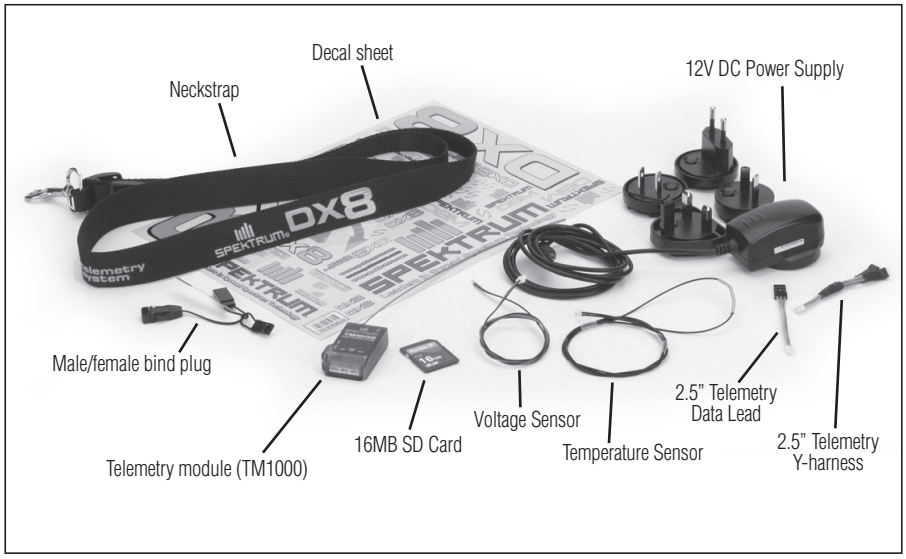
Note: The DX8 is compatible with all current Spektrum DSM2 aircraft receivers.

$"65*0/ When using the DX8 with parkflyer receivers (the AR6100 and AR6110), it's imperative that these receivers only be flown in parkflyer-type aircraft (small electric airplanes or mini and micro helicopters). Flying receivers designed for parkflyers in larger aircraft could cause loss of connection.

Note: The DX8 is NOT compatible with the original DSM AR600 receiver.

*5&.4 */$-6%&%

DX8 transmitter
AR8000 8-channel receiver
Power supply w/ adaptors
Neckstrap
SD card
Bind Plug
TM1000 telemetry module
Voltage sensor
Temperature sensor
Data lead
Telemetry Y-Harness
Decal sheet
DX8 instruction manual
Programming Guide
2.0mm L hex wrench



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The DX8 features a built-in multi-chemistry charger designed to charge 4-cell NiMH and 2-cell LiPo batteries at a charge rate of 200mAh. The charge jack on the right side of the transmitter is non-polarity-critical, allowing you to use any type of 12-volt supply to charge the battery regardless of connector polarity. Using the included SPMB2000NMTX NiMH battery pack, you should plug the included 12-volt AC to DC power supply in for 10 to 12 hours to fully charge the battery.

$"65Never plug in a peak detection or fast charger into your DX8 as this could damage the internal charge circuit. Use only a 12V DC source.

With the transmitter power turned off, plug the included 12 volt power supply into a wall outlet. Then plug the male charge plug into the charge jack. The blue LED on the front of the transmitter will illuminate. When charging the optional SPMB4000LPTX, a full charge can take up to 30hrs depending on the initial charge state of the battery. When charging a LiPo, the blue light will turn off when the charge cycle is complete.

The DX8 includes a rechargeable NiMH battery pack. A low battery alarm sounds when the battery reaches 4.3 volts. Spektrum offers an optional 2-cell LiPo battery pack (SPMB4000LPTX) for the DX8. LiPo batteries have a higher operational voltage and when switching to a 2-cell LiPo battery in the transmitter, it is important to change the low battery alarm to the LiPo setting to prevent over-discharging the pack.

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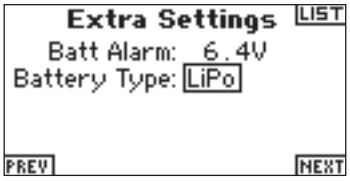
In the System Setting screen (see page 20 in your manual) rotate the roller to select NEXT at the bottom right of the System setting screen. The following screen appears.



Rotate the roller to highlight battery type.

Press the roller to access NiMH or LiPo. The low voltage cutoff will default to the recommended voltage for the battery type selected. The voltage cutoff can be adjusted from this screen, but normally the default cutoff of 6.4 volts for LiPo is recommended.

#"55&3: "/% $)"3(*/(13&$"65*0/4 "'3%/(4

'BJMVSF UP FYFSDJTF DBVUJPO XIJMF VTJ XJUI UIF GPMMPXJOH XBSOJOHT DPVME SF FMFDUSJDBM JTTVFT FYDFTTJWF IFBU '*3 **property damage.**

- t 3FBE BMM TBGFUZ QSFDBVUJPOT BOE M
- t /FWFS allow minors to charge battery packs without adult supervision.
- t /FWFS drop power supply or batteries.
- t /FWFS attempt to charge damaged batteries
- t /FWFS attempt to charge a battery pack containing different types of batteries.
- t /FWFS charge a battery if the cable has been pinched or shorted.
- t /FWFS allow batteries or battery packs to come into contact with moisture at any time.
- t /FWFS charge batteries in extremely hot or cold places (recommended between 50-80 degrees F) or place in direct sunlight.
- t "MXBZT disconnect the battery after charging, and let the charger cool between charges.
- t "MXBZT inspect a new battery before charging.
- t "MXBZT terminate all processes and contact Horizon Hobby if the product malfunctions.
- t "MXBZT keep batteries and charger away from any material that could be affected by heat (such as ceramic and tile), as they can get hot.
- t "MXBZT end the charging process if the charger or battery becomes hot to the touch or starts to change form (swell) during the charge process.

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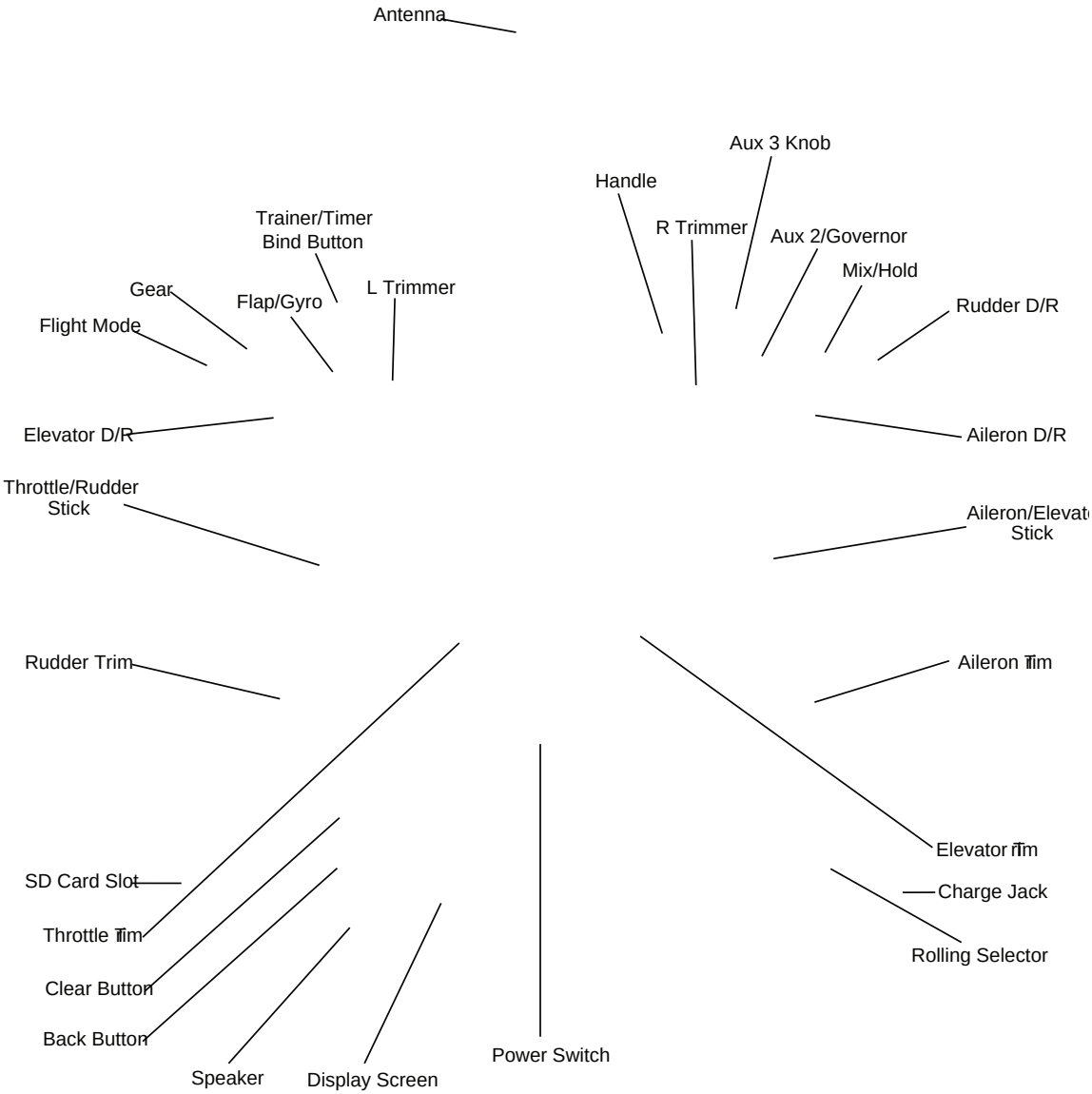
Note: to change transmitter modes see page 39

⚠ 8"3/*/(&/463& '6563& "/5&4"''&5 Do not attempt to use the antenna to bear any weight, pick up the transmitter by the antenna or alter the antenna in any way. If the transmitter antenna or related components become damaged the output strength can be severely impeded which could lead to a crash, injury, and property damage.



Antenna
Aux 3 Knob
Handle
R Trimmer
Aux 2/Governor
Gear
Flight Mode
Trainer/Timer
Bind Button
Mix/Hold
Flap/Gyro
L Trimmer
Rudder D/R
Elevator D/R
Aileron D/R
Elevator/Rudder
Stick
Throttle/Aileron
Stick
Rudder Trim
Aileron Trim
Throttle Trim
SD Card Slot
Charge Jack
Elevator Trim
Rolling Selector
Clear Button
Back Button
Speaker
Display Screen
Power Switch

,&: */165 "/% %*41-": '6 0$5*0/6451 65/8/(

The DX8 utilizes a roller that can be rotated or pressed and two buttons, Back and Clear that are used to access and program all the functions.

Press the ROLLER to access screens or functions
Rotate the ROLLER to adjust values or to select options
Note: Pressing the ROLLER for more than three seconds will return to the main screen.

Press the CLEAR button to return the highlighted value to its default setting
Press the BACK button to return to the previous screen

Direct Model Access- From the main screen, you can access the Model Select screen (used to change models) by pressing the BACK and CLEAR buttons simultaneously.

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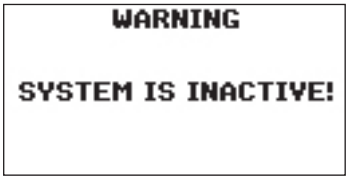
The DX8 2.4 features advanced digital trims. The Main screen displays the graphic position for the trims. The Throttle Aileron, Elevator, and Rudder trim levers, and when activated the right and left trimmers, feature an audible center trim beep and a pause. You can adjust the amount of travel per each trim in the Trim Step Function, located in System Setup Mode. See page 16 for more details.

Note: When the transmitter is turned off, the trims and left and right trimmer values are stored in memory and recalled when the system is turned back on.

*/"$5*7*53/8/(

The DX8 features an inactivity warning that warns if the transmitter is left on preventing draining the batteries. If the transmitter is left on and no input is given to the sticks or switches for 10 minutes, an alarm will sound and warning screen appear. Moving any stick or switch will clear the alarm. Normal RF modulation continues throughout the alarm maintaining the RF link.



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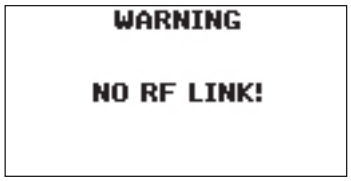
The DX8 features a No RF output warning. If the 2.4GHz band is full, it's possible that the DX8 may not be able to find open channels when the transmitter is first turned on. If the transmitter finds no open channels a warning screen appears and will remain until the transmitter is able to find two open channels and transmit.



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When the transmitter voltage drops below 4.3 volts, "Warning Low Battery" will flash and an alarm sound. If you are flying when this occurs, land immediately.

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The DX8 features programmable alarms that warn of a potential unsafe switch or stick position when the transmitter is turned on. In Acro mode programmable alarms include high throttle, gear and mid and land flap positions while in helicopter mode warnings include high throttle, Stunt 1, Stunt 2, and Hold. If any of these switches or throttle stick position is in an unsafe position when the transmitter is turned on, an alarm will sound, the screen will display the offending switch position and the transmitter will not transmit a signal. Moving the switch or stick to the desired position will clear the warning and normal operation will resume. See page 18 for details on programming warnings.

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The AR8000 full range 8-channel receiver features DSM2™ technology and is compatible with all Spektrum™ and JR® aircraft radios that support DSM2 technology including: JR12X, 11X, X9503, X9303, Spektrum DX8, DX7, DX7se, DX6i, DX5e and Module Systems.

Note: The AR8000 receiver is not compatible with the Spektrum DX6 parkflyer transmitter.

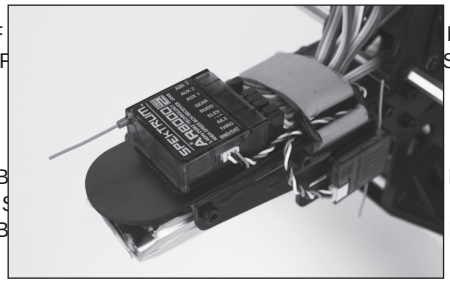
'FBUVSFT
- t DIBOOFM GVMM SBOHF SFDFJWFS
- t .VMUJ-JOL SFDFJWFS UFDIOPMPHZ
- t *ODMVEFT POF JOUFSOBM BOE POF SF
- t 4NBSU4BGF TZTUFN
- t)PME -BTU $PNNBOE GBJMTBGF
- t 1SFTFU 'BJMTBGF
- t 2VJDL$P XOUFDU#UPXOPVU %FUFDUJPO
- t 'MJHIU -PH DPNQBUJCMF PQUJPOBM

t 3FTPMVUJPO
t)JHI TQFFE NT PQFSBUJPO XIFO VTF FST
t)PME JOEJDBUPS 3FE -&% JOEJDBU SFE
EVSJOH nJHIU

"QQMJDBUJPOT
Full range up to 8-channel aircraft including:
t "MM UZQFT BOE TJ[FT PG HMPX HB BJSQMBOFT
t "MM UZQFT BOE TJ[FT PG OP QPXFS
t "MM UZQFT BOE TJ[FT PG HMPX HB IFMJDPQUFST

Note: Not for use in airplanes that have full carbon fuselages. Not for use in airplanes that have significant carbon or conductive structures. It is recommended to use one of the carbon fuselage receivers. (SPMAR9300, SPMAR6255).

4QFDJGJDBUJPOT
5ZQF %4. GVMM SBOHF SFDFJWFS
$IBOOFMT
.PEVMBUJPO %4.
.BJO 3FDFJWFS %JNFOTJPOT Y Y 10
Y Y NN
3FNPUF 3FDFJWFS %JNFOTJPOT Y Y 10
Y Y NN
.BJO 3FDFJWFS 8FJHIU P[H
3FNPUF 3FDFJWFS 8FJHIU P[H
8FJHIU XJUI 3FNPUF 3FDFJWFS P[H
7PMUBHF 3BOHF UP 7
3FTPMVUJPO
'SBNF 3BUF NT XIFO QBJSFE XJUI UIF %9 TF PS %9
$PNQBUJCJMJUZ "MM %4. BJSDSBGU USBOTNJUUFST BOE NPEVMF TZTUFNT



:)BSOFTTFT BOE 4FSWP &YUFOTJPOT
Do not use amplified Y-harnesses and servo extensions with Spektrum equipment. Only use standard non-amplified Y-harnesses and servo extensions. When converting existing models to Spektrum, replace all amplified Y-harnesses and/or servo extensions with conventional non-amplified versions

1PXFS 4ZTUFN 3FRVJSFNFOUT
Onboard power systems must provide adequate power, without interruption, to the receiver even when the system is fully loaded (servos at maximum flight loads). Inadequate power systems are a primary cause of in-flight failures. Some 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 and, if used, the regulator and power bus. The AR8000's minimum operational voltage is 3.5-volts. Test the system per the following guidelines to a minimum voltage of 4.8-volts during ground testing. This will compensate for battery discharging or actual flight loads that are greater than ground test loads.

3FDPNNFOEFE 1PXFS 4ZTUFN (VJEFMJOFT

1. When setting up large or complex aircraft with multiple high-torque servos, use a current and voltmeter (HAN172). Plug the voltmeter in an open channel port in the receiver, and with the system on, load the control surfaces on your aircraft by applying pressure with your hand. Monitor the current as you load control surfaces. The voltage should remain above 4.8 volts even when all servos are heavily loaded.
2. With the current meter inline with the receiver battery lead, load control surfaces while monitoring the current. The maximum continuous recommended current for a single heavy-duty servo/battery lead is 3 amps. Short-duration current spikes of up to 5 amps are acceptable. If your system draws more than these currents, you need to use multiple packs of the same capacity with multiple switches and multiple leads plugged into the receiver.
3. If using a regulator, perform tests for a 5-minute period. A regulator may provide adequate short-term power, but this tests its ability to maintain voltage at significant power levels over time.
4. For really large aircraft or complex models, multiple battery packs with multiple switch harnesses are necessary. No matter what power systems you choose, always carry out test #1. Make sure the receiver is constantly provided with 4.8 volts or more under all conditions.

⚠ $"65*0/ When charging any brand of NiMH battery pack, make sure the battery is fully charged. Due to the nature of peak charges and variations in charging rates, heat development, and cell types–the capacity reading of a battery charged on a fast peak charger may only reach 80% of its nominal value. Use a charger that displays total charge capacity. Note the number of mAh put into a discharged pack to verify the charge is at full capacity.

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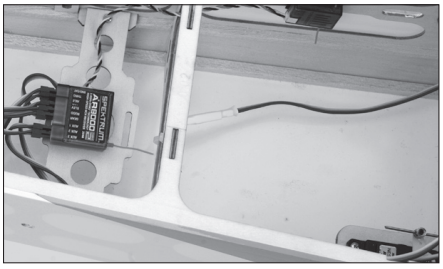
In gas and glow aircraft install the main receiver by wrapping it in protective foam and fastening it in place using rubber bands or hook and loop strap.

In electric airplanes or helicopters, you can use thick double-sided foam tape to fasten the main receiver in place.

Mount the remote in a slightly different location from the primary receiver. This gives tremendous improvements in path diversity. Essentially, each receiver sees a different RF environment and this is key to maintaining a solid RF link. This is especially the case in aircraft with substantial conductive materials (e.g., larger gas engines, carbon fiber, pipes etc), which can weaken the signal.

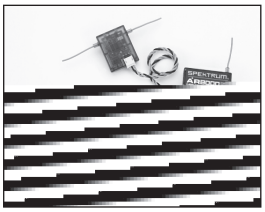
Using servo tape, mount the remote receiver keeping it at least 2 inches away from the primary antenna. Ideally, you should position the antennas perpendicular to each other. In airplanes, we recommend mounting the primary receiver in the center of the fuselage on the servo tray and the remote receiver to the side of the fuselage or in the turtle deck.

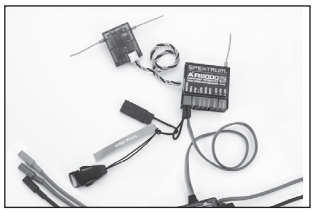


#*/%*/(

You must bind the receiver to the transmitter before the receiver will operate. Binding teaches the receiver the specific code of the transmitter, so it will only connect to that transmitter.

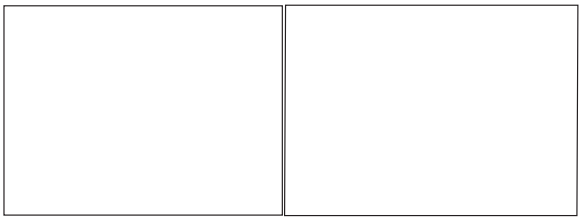
1. To bind an AR8000 to a DSM2 transmitter, insert the bind plug in the BATT/BIND port on the receiver.



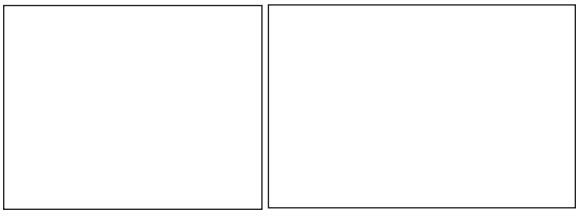


Note: To bind an aircraft with an electronic speed controller that powers the receiver through the throttle channel (ESC/BEC), insert the bind plug into the BATT/BIND port in the receiver and the throttle lead into the throttle (THRO) port. Proceed to Step #2.

2. Power the receiver. The LED on the receiver will be flashing, indicating the receiver is ready to be bound to the transmitter.



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



4. Press and hold the trainer button while powering on transmitter.
5. The system will connect within a few seconds. Once connected, the LED on the receiver will go solid indicating connection.
6. Remove the bind plug from the BATT/BND port on the receiver. Power off the transmitter and store the bind plug in a convenient place.

/05*$& Remove the bind plug to prevent the system from entering bind mode the next time the power is turned on.

7. After setting up your model, rebind the system so the true low throttle and neutral control surface positions are set.

'"*-4"'&4

When you bind your transmitter, you are programming the receiver with failsafe defaults. If connection is lost between the transmitter and receiver, the receiver immediately operates in those preprogrammed default positions. Those positions are failsafes. The AR8000 has three failsafes: SmartSafe Failsafe, Hold Last Command Failsafe, and Preset Failsafe.

SmartSafe Failsafe

SmartSafe Failsafe is always active in both hold last command failsafe and in preset failsafe. SmartSafe is a safety feature on the throttle channel only that offers the following benefits:

- t 1SFWFOUT FMFDUSJD NPUPST GSPN PQFSBUJOH XIFO UIF SFDFJWFS POMZ JT U (no signal present)
- t 1SFWFOUT UIF TQFFE DPOUSPMMFS GSPN BSNJOH VOUJM UIF UISPUUMF JT NPW throttle position after connection is made
- t 4IVUT PGG FMFDUSJD NPUPS BOE SFEV
- t *G UISPUUMF JT BU BOZ QPTJUJPO PUIF
- t *G DPOOFDUJPO JT MPTU JO nJHIU -SmartSafe sets the throttle to the position it was in during the binding process.

)PX 5P 1SPHSBN

SmartSafe is automatically set when hold last command failsafe or Preset failsafe is programmed or the system is bound. **Note:** It's important to have the throttle stick in the low position to store low throttle during binding

To Test

Confirm the failsafe setting is correct by turning off the transmitter. The throttle should go to the preset low throttle position.

⚠ $"65*0/ Make sure the aircraft is restrained on the ground. If failsafe is not set, your aircraft might advance to mid or full throttle.

Hold Last Command

If you lose connection, all channels except for throttle channel hold last given command and the aircraft continues on its path. So, if you were turning when connection was lost, your aircraft would continue turning.

)PX UP 1SPHSBN

1. Leave the bind plug in the bind port through the entire binding process.
2. Remove bind plug only after receiver connects to transmitter

To Test

Confirm the failsafe settings are correct by turning off the transmitter. All channels except for the throttle should hold the last command.

⚠ $"65*0/ Make sure the aircraft is restrained on the ground. If failsafe is not set, your aircraft might advance to mid or full throttle.

Preset Failsafe

If the signal is lost, all channels are driven to their failsafe position set during binding.
Preset Failsafe is ideal for sailplanes, as spoliers can be deployed during loss of signal, preventing a flyaway.

)PX 5P 1SPHSBN

1. Insert the bind plug and power on the receiver.
2. When the receiver LEDs blink indicating bind mode, remove bind plug before binding the transmitter to the receiver.
3. LED lights will continue to blink.
4. Move transmitter's control sticks and switches to the desired Preset Failsafe positions then turn it on in bind mode.
5. The system should connect in less than 15 seconds.

/05*$& Failsafe features vary according to receiver, so if using a receiver other than the AR8000, consult your receiver's instructions for the failsafes that apply.

Before flight, ALWAYS confirm your binding is good and failsafe is set. To do this, make sure the system is connected, turn your transmitter off. Confirm that low-throttle is active.

⚠ $"65*0/ Make sure the aircraft is restrained on the ground. If failsafe is not set, your aircraft might advance to mid or full throttle.