SPEKTRUM®

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AR7200BX User Guide

NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, Inc. 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:

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, serious injury or death OR create a high probability of superficial 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 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. Do not attempt disassembly, use with incompatible components or augment product in any way without the approval of Horizon Hobby, Inc. 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**

Thank you for purchasing a genuine Spektrum product. Always purchase from a Horizon Hobby, Inc. authorized dealer to ensure authentic high-quality Spektrum product. Horizon Hobby, Inc. 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.

WARRANTY REGISTRATION

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

The AR7200BX combines the proven BeastX™ flybarless technology with a Spektrum™ 7-channel, high-speed, 2048 receiver. This combination provides the ultimate in performance and simple installation. The AR7200BX is perfect for mini (up to 450 class) helicopters. Using an optional DSMX remote receiver adds necessary path diversity for even the largest electric, glow, gas and turbine-powered helicopters.The AR7200BX is compatible with all Spektrum and JR® aircraft radios that support DSM2™ and DSMX technology. **The AR7200BX receiver is not compatible with the Spektrum DX6 park flyer transmitter.**

While the AR7200BX provides maximum agility and precision for intermediate and professional pilots, it is not a flying aid for beginners.
IMPORTANT: When using the AR7200BX with larger helicopters (500-size and larger): It is necessary that you connect a DSMX remote receiver (not included) to the AR7200BX before binding. See "Receiver Installation" for more information.

⚠ **CAUTION:** DO NOT use DSM2 remote receivers with the AR7200BX. Doing so will cause the helicopter to crash, resulting in property damage and injury.

Box Contents	**Optional Parts**
AR7200BX	DSMX Remote Receiver (SPM9645)
Bind Plug	USB interface
Gyropads	
Adjustment tool	
Instruction Manual	
Program Guide	

Preflight Safety Precautions and Checklist
• Read all safety precautions and literature prior to use of this product.
• Always ensure the receiver and transmitter are properly bound before flight.
• Always ensure batteries are fully charged and have proper capacity for the flight time you intend.
• Always exit programming mode before flying.
• Always use the included gyropads and ensure they are properly mounted and in good condition before each flight.
• Power your transmitter on first and then the receiver.
• Always allow the AR7200BX to initialize before flight.
• Confirm the cyclic and tail rotor servos do not bind at the full range of the throw.
• Perform a control test, ensuring controls move in correct directions.

Swashplate—
Cyclic Gain

Swashplate—
Direct Cyclic Feed Forward

Setup Button

Tail Dynamic

Menu Point
LED

Status LED

SPEKTRUM.

STATUS

AR7200BX

BND/DAT
AUX2
AUX3
THRO
Rx L
ELEV
AILE
AUX1
RUDD

Features
- Integrated BeastX flybarless technology and Spektrum 7-channel receiver
- Optional DSMX remote receiver capable
- SmartSafe™ failsafe system
- Flight Log and Telemetry compatible (optional)
- 2048 Resolution
- High-speed 11ms operation when used with capable transmitters

Applications
- 250–800 sized nitro, gas and electric flybarless 3D helicopters
- Scale flybarless helicopters

⚠️ **CAUTION:** Do not use with flybar helicopters or airplanes.

⚠️ **WARNING:** For first-time use or when making mechanical changes that involve throw, always ensure you reset the servo limits to prevent binding. Not doing so will cause the helicopter to crash, resulting in property damage and injury.

Specifications
Type: DSM receiver and BeastX flybarless technology
Channels: 7 (8 channels are available, however, Channel 5 is only used as an internal gain channel for the tail gyro).
Modulation: DSM2, DSMX
Main Receiver Dimensions: 36mm x 28mm x 13 mm/
1.42 in x 1.1 in x .51 in
(Length x Width x Height)
Main Receiver Weight: 0.66 oz (18.6 g)
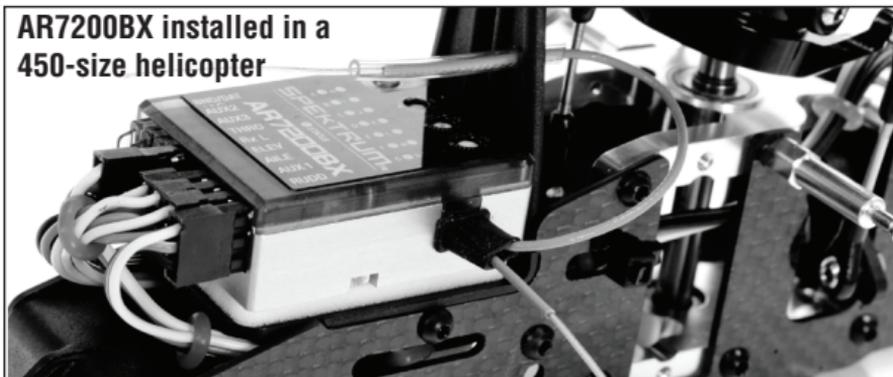*Voltage Range:* 3.5 to 8.5V
Resolution: 2048
Frame Rate: 11ms
Compatibility: All DSM2 and DSMX aircraft transmitters and module systems

Antenna Polarization

For optimum RF link performance, mount the antennas in an orientation that allows for the best possible signal reception when the helicopter is in all possible attitudes and positions. Orient the internal receiver antennas perpendicular to each other (see Receiver Installation).

When using a DSMX remote receiver—Use double-sided foam tape to mount the remote receiver so that the antenna is perpendicular to the longer main receiver antenna. The remote receiver antenna must be at least 2 inches away from the main receiver's antenna. The AR7200BX is compatible with all DSM2 and DSMX transmitters, even when using the optional DSMX remote receiver.

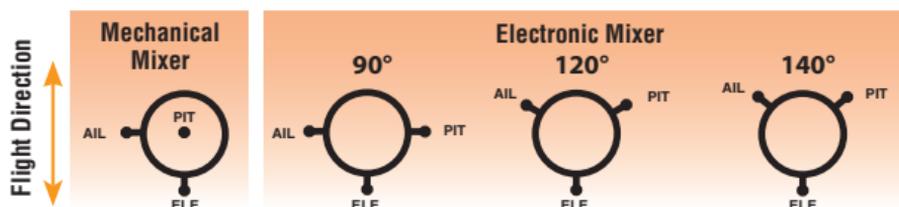

AR7200BX installed in a 450-size helicopter

AR7200BX installed in a 90-size helicopter with remote

Servo Connections and Auxiliary Channels

Servo Selection

Select servos that are adequate for flybarless operation. The servos must have high torque in addition to being fast and precise. Using high-quality servos that are suited for flybarless helicopters increases the rotor blade options. A poor servo-rotor blade combination will cause several issues including oscillations in hover and unwanted reaction in fast forward flight. Connect all servos to the AR7200BX. Refer to the diagram below for your particular helicopter's cyclic servos. Connect the pitch (PIT) servo to AUX1 on the AR7200BX.

Auxiliary Channel

While the AR7200BX is a 7-channel receiver, Aux 3 is additionally offered for more channel functions. The Gear channel is internal to the receiver used for tail gain.
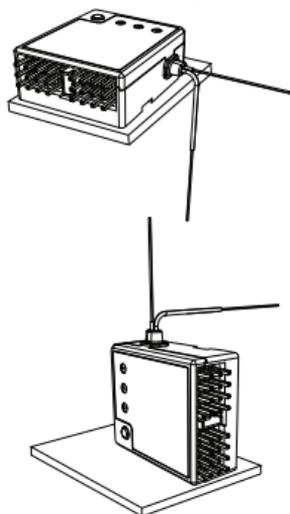
Preparing the Transmitter for Flybarless Operation
1. Create a new model in your transmitter's model memory.
2. Be sure all trims/sub-trims are disabled (zeroed) and all servo travel values are 100%.
3. Set your transmitter's swash type to mechanical mixing (1 servo 90° mixing). Never enable your transmitter's eCCPM or revo-mixing functions. This is handled by the AR7200BX.
4. Do not adjust the pitch curve at this time. During setup, the pitch curve must be linear from -100% to +100% (or 0% to 100% depending on radio brand).
5. Again, make sure that there are no mixing functions active (for example revo-mixing).

Receiver Installation
Attach the AR7200BX receiver using one of the provided gyropads. The AR7200BX must be in a low vibration position, such as the receiver or gyro platform. The mounting platform must be perpendicular to the main shaft. Helicopters usually have enough room on the frame to separate the main feeder antenna and the optional remote receiver. If necessary, make a mount using clear plastic to attach the remote receiver.

The AR7200BX can be attached flat, upright or inverted under the helicopter. The servo connector pins must always point toward the front or rear of the helicopter. Make sure the edges of the AR7200BX are all parallel with the corresponding axes of the helicopter.

Y-Harnesses and Servo Extensions

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 devices, replace all amplified Y-harnesses and servo extensions.

Binding

You must bind the receiver to the transmitter before the receiver will operate. Binding is the process of programming the receiver to recognize the GUID (Globally Unique Identifier) code of a single specific transmitter..

To bind an AR7200BX to a DSM2 or DSMX transmitter:
1. Insert the bind plug in the BND/DAT port on the receiver.
2. Power on the receiver (The AR7200BX can be powered through any open port). The H LED on the AR7200BX and external remote receiver (if connected) should be flashing, indicating the receiver is in bind mode.

   AR7200BX with bind plug inserted

   To bind a helicopter with an electronic speed controller that powers the receiver through the throttle channel, insert the bind plug into the BND/DAT port in the receiver and the ESC lead into the throttle (THRO) port.
3. Move the sticks and switches on the transmitter to the desired failsafe positions (low throttle and neutral control positions).
4. Follow the procedures of your specific transmitter to enter Bind Mode. The system will connect within a few seconds. Once connected, the H LED will turn off and the AR7200BX will start the initialization process.
5. After setting up your model, rebind the system so the true low throttle positions are set in the failsafe.
6. Remove the bind plug from the BND/DAT port on the receiver before you power off the receiver and transmitter. Store the bind plug in a convenient place.

NOTICE: Remove the bind plug to prevent the system from entering bind mode the next time the power is turned on.

Setup Procedure

Power on the transmitter first. The AR7200BX initializes when the receiver is powered on. Do not move the AR7200BX or the helicopter while the receiver is initializing. You can lay the helicopter on its side to prevent it from moving in windy conditions.

Receiver Initialization Cycle

1. LEDs cycle and then the firmware version will display for 3 seconds.
2. LEDs H through N cycle to initialize the receiver inputs.
3. LEDs A through G cycle to calibrate the sensors.
4. The swashplate moves a small amount and the Status LED turns solid after initialization completes.

Status-LED

Purple Solid	Tail gyro is in Normal-Rate mode
Blue Solid	Tail gyro is in Heading Lock mode

5. One of the LEDs A–N will light for 10 seconds to show the amount of tail gain.
   (A) = 0% to (N)=100%.

Switching Between Menu Levels

The AR7200BX has two menu levels—Setup Menu and Parameter Menu. You must be in flight-ready mode (A–N LEDs off) to switch between menu levels.

Setup Menu—Access all basic settings for helicopter setup.

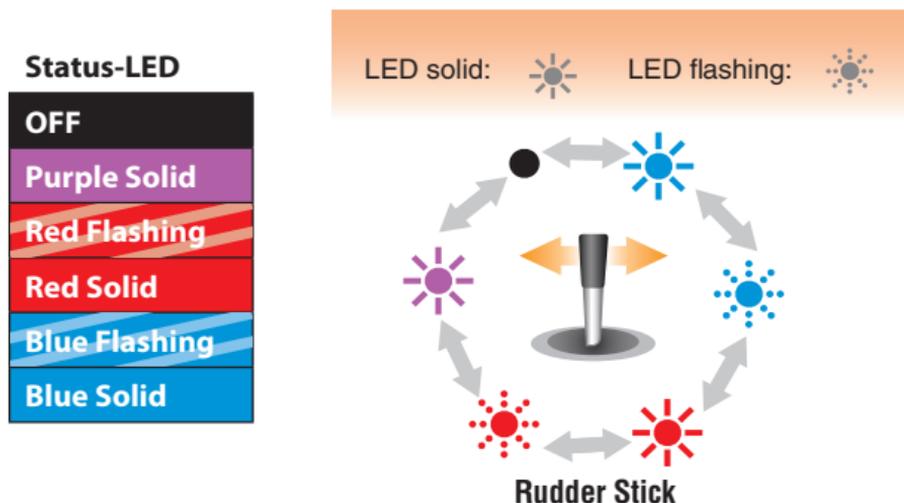To access the Setup Menu: Press and hold the setup button until LED (A) stops flashing and lights up solid.

Parameter Menu—Access settings to adjust the helicopter's flight characteristics. The Parameter Menu is used at the flying field.

To access the Parameter Menu: Press the setup button until LED (A) flashes rapidly. Release the setup button when LED (A) flashes.

Selection Within Menu Points

The Status LED color indicates menu point options. The options are:

Move the rudder stick left to move counterclockwise through the options. Move the rudder stick right to move clockwise through the options. The available options depend on the menu point.

Status-LED

OFF
Purple Solid
Red Flashing
Red Solid
Blue Flashing
Blue Solid

LED solid: ☀   LED flashing: ☀

Rudder Stick

Switching to the Next Menu Point

Quickly press the setup button to move to the next menu point. It is possible to skip menu points by pressing the setup button. Do not move the transmitter sticks when you are in a menu point you want to skip.

Exiting the Menu

When LED (N) is solid, quickly press the setup button to exit the menu. The AR7200BX will also automatically exit the menu after 4 minutes of inactivity. The AR7200BX will not automatically exit at points D, G, I and J to allow time for mechanical helicopter adjustments.

⚠ **CAUTION:** Never fly the helicopter when the AR7200BX is in the Setup or Parameter Menu. Gyro control and transmitter stick controls are disabled when the AR7200BX is in the Setup or Parameter Menu.

Factory Reset

To erase all AR7200BX settings:

In any setup menu (A through N), press and hold the setup button for at least 10 seconds until LEDs (A) – (N) and (J) quickly flash to confirm the reset.

Any previous programming is deleted during a reset.

⚠ **CAUTION:** Do not attempt to fly the helicopter without doing a complete setup procedure after a reset. If you do not complete the setup, the helicopter will crash, causing property damage and injury.

Unplug all servos and remove the servo horns before resetting the AR7200BX.

Setup Menu

The following section describes each menu point and the available settings.

A. Mounting Orientation

The AR7200BX can be mounted horizontally or vertically. The only restriction is that the servo plug connectors MUST point toward the front or rear of the helicopter.

Status-LED

Red Solid	Vertical (on the side)	*=Factory
Blue Solid	Horizontal (flat)*	Setting

Push the setup button to save the selection and move to menu point (B).

B. Swashplate Servo Frequency

⚠ **CAUTION:** If you do not know the maximum pulse rate for your servos, do not exceed 50Hz servo frequency. A higher servo frequency can lead to servo failure. Analog servos usually tolerate a maximum of 50Hz. Contact the servo manufacturer if you are unsure of the servo frequency.

Always use the highest servo frequency that the servos will handle for the best performance.

Status-LED

OFF	User Defined (requires PC software)	
Purple Solid	50Hz*	
Red Flashing	65Hz	
Red Solid	120Hz	
Blue Flashing	165Hz	*=Factory
Blue Solid	200Hz	Setting

Push the setup button to save the selection and move to menu point (C).

To see a complete Spektrum servo reference chart, refer to the servo chart on spektrumrc.com.

C. Tail Servo Center Position/Pulse Length

Almost all tail servos work with 1520µs (micro seconds). There are a few tail servos available that use a different center position pulse length.

Status-LED	Tail servo center position pulse length
OFF	User Defined (requires PC software)
Purple Solid	960µs
Red Solid	760µs
Blue Solid	1520µs*

*=Factory Setting

IMPORTANT: If a pulse length is selected (C) that does not allow a certain tail servo frequency (D), the frequency is automatically reduced. The center position pulse setting always has priority. A servo can operate without issue at a lower frequency but cannot operate with an incorrect center position pulse length.

Push the setup button to save the selection and move to menu point (D).

D. Tail Servo Frequency

⚠ **CAUTION:** If you do not know the maximum frequency for your selected tail servo, do not exceed 50Hz. Exceeding the maximum frequency for the tail servo can lead to servo failure.

For best performance, always use a high-quality tail servo capable of at least 270Hz. Depending on the selection chosen in menu point (C), you may not be able to select a frequency above 333Hz.

Status-LED	
OFF	User Defined (requires PC software)
Purple Solid	50 Hz*
Red Flashing	165Hz
Red Solid	270Hz
Blue Flashing	333Hz
Blue Solid	560Hz

*=Factory Setting

Attach a servo horn to the tail servo, making sure the tail linkage rod forms a 90° angle with the servo horn. Adjust the tail linkage rod according to your helicopter instruction manual. For most helicopters, the tail pitch slider should be centered on the tail shaft. The tail rotor blades will have a small amount of positive pitch to counter the torque from the main rotor.

IMPORTANT: Menu point (D) does not have a time limit.
Push the setup button to save the selection and move to menu point (E).

E. Setting the Tail Servo Endpoints

Adjust the limit of the tail rotor blades to achieve the best throw. The best throw is determined by either the maximum possible control travel of the tail slider or the maximum allowed tail rotor blade angle of attack. Make sure the tail rotor blades move in the correct direction (see your helicopter manual for more information). If the tail rotor blades move in the wrong direction, reverse the rudder direction in your transmitter.

To adjust the limits:
1. Move the rudder stick in one direction until the servo reaches the maximum endpoint without binding. If you move the servo too far, move the rudder stick in the opposite direction and move the tail pitch slider away from the limit.
2. Release the rudder stick.
3. Once the maximum endpoint is adjusted, don't move the rudder stick.
4. Wait for the Status LED to flash and then turn Solid Red or Solid Blue, depending on the direction. The servo limit for one direction is saved.
5. Adjust the servo limit in the opposite direction. Move the tail pitch slider to the other maximum endpoint and release the rudder stick.
6. The Status LED flashes, followed by Solid Purple, indicating that the servo endpoint adjustment is complete.

IMPORTANT: If the Status LED does not light or lights in an unexpected color, the servo throw is too small. Move the tail linkage ball farther in toward the center of the servo horn.

Push the setup button to save the selection and move to menu point (F).

F. Setting the Tail Sensor Direction
1. Move the helicopter nose to the right.
2. The tail rotor blades should move in the same direction as left rudder input.
3. If the tail rotor blades move in the wrong direction, you must reverse the sensor direction.
4. Move the rudder stick once in any direction. The Status LED will change color.

Status-LED

Red Solid	Normal*	
Blue Solid	Reversed	*=Factory Setting

5. Repeat the test as described above.
6. Push the setup button to save the selection and move to menu point (G).

G. Adjusting the Swashplate Servo Centering

Menu point G electronically adjusts the center point of the cyclic servos.

1. With all swashplate servos connected, the servos are now operating in their center position or "reference position". The Status LED is Off.
2. Install the servo horns on the servos so the horns form an angle close to 90° with the linkage rod. The angle will not be a perfect 90°.
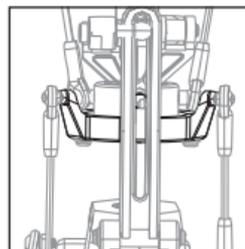3. Move the rudder stick once to select a servo.

Status-LED

OFF	Swashplate servos at reference position
Purple Solid	Elevator servo center adjust
Red Solid	Aileron servo center adjust
Blue Solid	Pitch servo center adjust

4. Move the elevator stick forward and back to adjust the center position.
5. Move the rudder stick to select the next servo. Complete Steps 3 & 4 for each servo.

IMPORTANT: Menu point (G) does not have a time limit.

6. Adjust the cyclic/swashplate linkage rods according to your helicopter manual. The swashplate should be centered and the main blades should have 0° of pitch. Always make rod length adjustments from the bottom (servos) to the top (blade grips).
7. Push the setup button to save the selection and move to menu point (H).
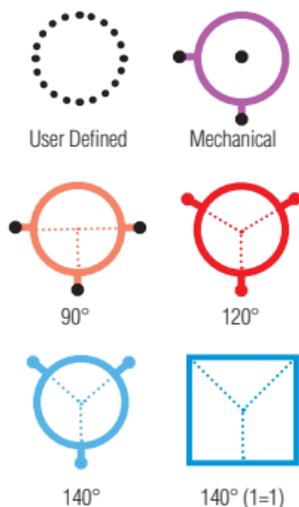
H. Swashplate Mixer

Select the electronic swashplate mixer required for your helicopter or choose "mechanical" if the helicopter uses a mechanical mixer. The AR7200BX supports 90°, 120° and 140° swashplates. You can also use any swashplate geometry by selecting User Defined (PC software required). Refer to your helicopter manual for more information on CCPM.

⚠️ **CAUTION:** NEVER use your transmitter's electronic swashplate mixing. All CCPM mixing is done by the AR7200BX.

Status-LED

OFF	User Defined
Purple Solid	Mechanical
Red Flashing	90°
Red Solid	120° *
Blue Flashing	140°
Blue Solid	140° (1=1)

*=Factory Setting

User Defined   Mechanical

90°   120°

140°   140° (1=1)

Push the setup button to save the selection and move to menu point (I).

I. Setting the Swashplate Servo Directions

Menu point (I) ensures the swashplate servos are moving correctly. Note that the proper aileron, elevator and collective pitch direction (right/left, up/down) will be corrected later using the servo reversing setting in the transmitter. Try each of the four possible combinations until the swashplate moves correctly. There is no need to adjust servos individually.

IMPORTANT: The direction of swashplate movement (e.g. Swashplate moving up when it should move down) is not important at this time. You will adjust the swashplate direction when the servos are moving together.

1. Move the collective pitch stick and observe the swashplate movement. The swashplate servos should all move together to raise or lower the swashplate.
2. If the swashplate is not horizontal when it moves, try a different servo combination by moving the rudder stick.
3. Repeat Steps 1 & 2 until the servos are all moving together.
4. Now make sure the swashplate is moving in the correct direction (Refer to your helicopter instruction manual).
5. If the swashplate is moving in the wrong direction (e.g. The swashplate is moving up when it should move down), use the servo reverse feature in your transmitter to reverse the appropriate channels.

Status-LED	AILE	ELEV	AUX1
OFF	normal	reverse	reverse
Purple Solid	normal*	normal *	reverse *
Red Solid	normal	reverse	normal
Blue Solid	normal	normal	normal

*=Factory Setting

IMPORTANT: Menu point (I) does not have a time limit. If the servos are still not reacting properly after using servo reverse, make sure the servos are connected to the proper receiver channels. Also, make sure any servo mixing in your transmitter is turned off.

Push the setup button to save the selection and move to menu point (J).

J. Teaching the Cyclic Pitch Geometry

⚠️ **CAUTION:** Do not touch any stick on your transmitter when entering menu point (J). This will cause unwanted flight behavior.

1. Move the rotor blades so that they are parallel to the tail boom.
2. Attach a pitch gauge to a rotor blade. The swashplate should be in the neutral position and the blade should have 0° of pitch. If the swashplate is not neutral with 0° of blade pitch, repeat menu point (G) before proceeding.
3. Move the aileron stick left or right until the pitch gauge has exactly 6° of cyclic pitch.
   IMPORTANT: The Status LED should still be Blue at 6° of cyclic pitch. If the Status LED is Red, Purple or Off, you must mechanically adjust the helicopter. You can use:
      A.) Shorter servo horns
      B.) Shorter linkage balls on the inner swashplate ring or
      C.) Longer blade grip linkage levers
4. If the pitch gauge has more than 6° of cyclic pitch, move the aileron stick in the opposite direction until the pitch gauge is at 6°.
5. Release the aileron stick and press the setup button once.

K. Adjusting the Collective Pitch Range

⚠️ **CAUTION:** Do not use any pitch curves in your transmitter while adjusting the Collective Pitch Range. Doing so will result in unwanted flight behavior.

1. Move the pitch stick all the way up (full positive pitch) and stay there.
2. Increase or decrease the maximum amount of positive pitch using the rudder stick.
3. When you have achieved the desired maximum pitch angle, move the pitch stick all the way down (full negative pitch).
4. Increase or decrease the maximum amount of negative pitch using the rudder stick.

⚠️ **CAUTION:** Make sure the blade pitch angle is moving in the correct direction. Incorrect blade pitch angle can result in erratic flight behavior. If the blade pitch is moving in the wrong direction, reverse the pitch channel in your transmitter.

Push the setup button to save the selection and move to menu point (L).

L. Adjusting the Cyclic Swashplate Limit

Menu point (L) adjusts the maximum possible tilting of the swashplate for aileron and elevator. The deflection is limited in a circular path, similar to a cyclic ring function, preventing swashplate binding at full aileron and elevator travel.

1. Carefully move the sticks for aileron, elevator and pitch to all maximum endpoints. Watch for binding or lack of movement in the swashplate, linkage rods and servos.
2. Move the rudder stick right or left to increase or decrease the aileron and elevator throw limiter. Always try to achieve the maximum possible cyclic throw without causing binding.
3. The Status-LED should still be Blue when the swashplate is at the maximum limit. If the Status-LED is Purple or Off, you must mechanically adjust the helicopter to increase the available throw.

IMPORTANT: If you make any modifications to menu points (G), (J) or (K) in the future, you must repeat menu point (L) again.
Push the setup button to save the selection and move to menu point (M).

M. Setting the Swashplate Sensor Directions

1. Tilt the helicopter forward. The swashplate should tilt backward.
2. Tilt the helicopter backward. The swashplate should tilt forward.
3. Roll the helicopter left. The swashplate should roll right.
4. Roll the helicopter right. The swashplate should roll left.
5. If the swashplate does not move in the correct direction, you will need to reverse the sensor direction by moving the rudder stick to select one of the following options. There are four options:

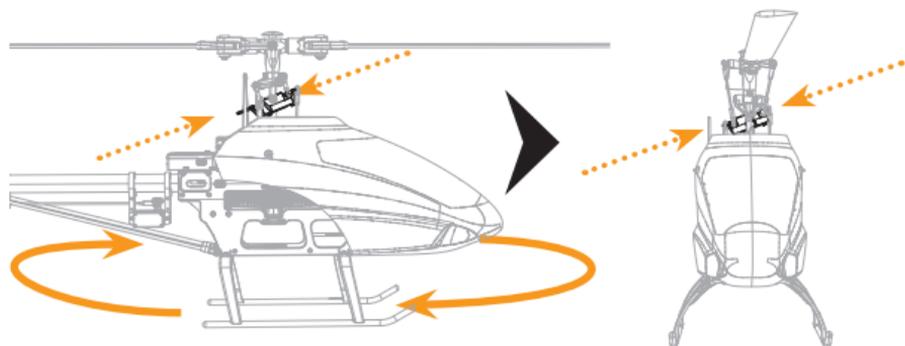| Status-LED	Elevator	Aileron
OFF	reversed	reversed
Purple Solid	reversed	normal
Red Solid	normal	reversed
Blue Solid	normal*	normal*

*=Factory Setting

6. Repeat Step 5 until both sensors are working in the correct direction.
7. Push the setup button to save the selection and move to menu point (N).

N. Setting the Pirouette Optimization Direction.

1. Note the direction the swashplate tilts when entering menu point (N). The swashplate will tilt forward or back; the direction does not matter.
2. Hold the helicopter at the rotor head and spin the helicopter by hand around the main shaft.
3. The swashplate should remain in the same tilt direction regardless of the rotational direction of the helicopter.
4. If the swashplate changes direction and rotates against the direction of the helicopter, use the rudder stick to change the direction.
5. Push the setup button to save the selection and exit the Setup Menu (N).

The setup steps of the AR7200BX are finished. It is now necessary to continue setting up the dials and parameters options.

Status-LED	Pirouette Optimization Direction
Red Solid	Normal*
Blue Solid	Reversed

*=Factory Setting

AR7200BX Power System Requirements

All flybarless gyro systems require uninterrupted power.

During even a short duration power interruption/brownout, the flybarless unit must reboot and reinitialize.

⚠️ **CAUTION:** If a power interruption/brownout occurs during flight, a crash will occur. It is your responsibility to ensure the AR7200BX has sufficient power without interruption.

Some of the power system components that affect the ability to properly deliver adequate power include:
• The switch harness, battery leads, servo leads, regulators etc.
• Receiver battery pack (number of cells, capacity, cell type, state of charge)
• The ESC's BEC capability to deliver current to the receiver when load is placed on the servos. This is the #1 cause of power interruptions in electric helicopters.

The AR7200BX has a minimum operational voltage of 3.5 volts; it is highly recommended the power system be tested per the following guidelines.

Recommended Power System Test Guidelines

Perform the following test with a voltmeter. The Spektrum Flight Log or Telemetry Modules (TM1000/TM1100) work well for this test.
Plug the Flight Log into an open channel port in the receiver and, with the system on, load the servos by applying pressure to the swashplate with your hand for 3 minutes. Monitor the voltage at the receiver. It is important to load the swashplate for 3 minutes. If a voltage regulator becomes hot, it can lose it's ability to supply current. An alternate method is to power on the system and rapidly move the control sticks (stir the sticks) with no load on the servos for 3 minutes. The voltage should remain above 4.8 volts in both cases.

SmartSafe™ Failsafe

SmartSafe is a safety feature on the throttle channel only that offers the following benefits:
• Prevents electric motors from operating when the receiver only is turned on (no transmitter signal present)
• Prevents the speed controller from arming until the throttle is moved to low throttle position after connection is made
• Powers off electric motors and reduces gas/glow engines to idle if signal is lost
  (Must bind the receiver at throttle off or idle position).
• If throttle is at any position other than low, the ESC won't arm
• If connection is lost in flight:

SmartSafe sets the throttle to the position it was in during the binding process (normally low throttle or idle).

How To Program

SmartSafe is automatically set when the system is bound. It's important to have the throttle stick in the low position to store low throttle during binding.

To Test

Electric helicopters: Remove the pinion gear from the motor before testing.
Gas or glow helicopters: Test the servo positions with the engine off.
Confirm the failsafe setting is correct by turning off the transmitter. The throttle should go to the preset low throttle position. All other channels should hold the last commanded position.

Range Testing

Before each flying session, and especially with a new model, perform a range check. All Spektrum aircraft transmitters incorporate a range testing system which, when activated, reduces the output power, allowing a range check.
1. With the model on the ground and the motor/engine off, stand 30 paces (approx. 90 feet/28 meters) away from the model.
2. Face the model with the transmitter in your normal flying position and place your transmitter into range check mode. This causes reduced power output from the transmitter.
3. You should have total control of the model in range test mode at 30 paces.
4. If control issues exist, call the Horizon Product Support office.

Dials and Tail Gyro Gain

To adjust the dials: Only use the original Spektrum AR7200BX adjustment tool to prevent damage to the dials.

Dial 1: Swashplate—Cyclic Gain

Turn Dial 1 clockwise to increase the swashplate gain.

Factory setting for Dial 1 is horizontal (50% swashplate gain). Use the factory setting for your first flights. Typically this setting is ideal for 450 class helicopters. If you are flying larger helicopters it may be necessary to slightly increase the cyclic gain positions.

The higher the gain, the more aggressively the helicopter will stop after cyclic movement and the helicopter will feel more stable in the air.

| *Cyclic Gain Too High* | Helicopter feels "soft" in flight and tends to oscillate on the elevator axis. |
| *Cyclic Gain Too Low* | The helicopter will feel softer, slower and less direct. |

Dial 2: Swashplate—Direct Cyclic Feed Forward

Turn Dial 2 clockwise to increase the swashplate's direct cyclic stick feed forward.

The direct cyclic stick feed is the part of the stick input going directly to the servos. When correctly adjusted, the direct stick feed allows the control loop to make small corrections and work more efficiently.

Factory setting for Dial 2 is horizontal.

| *Direct Cyclic Feed Forward Too High* | This causes over-control in your cyclic input. When set too high, the control loop overshoots and needs a steer back correction. This causes pitch backs (bobbles) on cyclic stops and imprecise fast forward flight. |
| *Direct Cyclic Feed Forward Too Low* | The helicopter will feel softer, slower and less direct. |

Increasing the direct cyclic feed forward will cause more cyclic stick input to go directly to the aileron and elevator on the swashplate giving a more responsive feel. Decreasing the direct stick feed forward does the opposite.

The optimal setting depends on many factors, including blades, servos, head speed, size and mass of the helicopter.

IMPORTANT: The direct cyclic feed forward does not affect the maximum rate of rotation. If the helicopter rotates too slowly:
1. Check the swashplate limiter settings in Setup menu point (L)
2a. Change the control behavior in Parameter menu point (B) or
2b. Increase the servo travels or dual rate in your transmitter

Dial 3: Tail Dynamic

Turn Dial 3 clockwise to increase the tail dynamic or counterclockwise to decrease the tail dynamic.

Factory setting for Dial 3 is horizontal

Make sure the maximum possible tail gyro gain has already been determined before adjusting the tail dynamic.

Increasing the Tail Dynamic	This will lead to harder stopping behavior and more aggressive response to tail stick inputs.
Tail Dynamic Too High	The tail will bounce back shortly after a hard stop and feel soft when making fast direction changes.
Tail Dynamic Too Low	Stopping might be too soft.

The tail should stop perfectly to the point without making any flapping noises.

Transmitter adjustment: Tail Gyro Gain

Tail gain can be adjusted using the transmitter's gear channel. Most transmitters have a gyro screen that allows gyro adjustments. It is important that the gyro function is assigned to the gear channel in the transmitter.

Status-LED

Purple Solid	Rate Mode
Blue Flashing	Heading Lock Mode
Blue Solid	

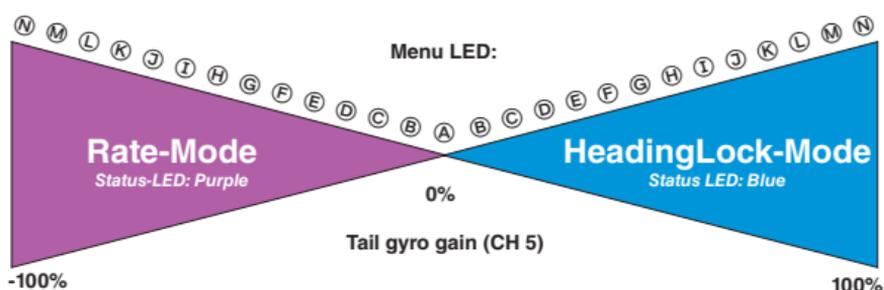The color of the Status LED indicates the selected mode when the AR7200BX is ready for operation.

When the gain channel is centered, LED A = 0% gain. The maximum adjustable tail gain is 100% in both modes (LED N = 100%). One of the LEDs A–N will light for 10 seconds to show the amount of tail gain. (A) = 0% to (N)=100%.

For the first flights, do not use a gain higher than F or G in Heading Lock mode.

To find the optimal gain:
1. Start with a low gain value where the tail will feel very weak.
2. Increase the gain step by step until the tail feels more precise and holds better on sudden pitch inputs.
3. If the gain is too high, "wagging" will appear in fast forward or backward flight.

Menu LED:

Rate-Mode
Status-LED: Purple

HeadingLock-Mode
Status LED: Blue

0%

Tail gyro gain (CH 5)

-100%   100%

Parameter Menu

To enter the Parameter Menu:
1. When the AR7200BX is ready for flight, press and hold the setup button until the LED flashes next to menu point (A).
2. Release the setup button.
3. Press the setup button once to move to the next menu point. The Parameter Menu only has 8 menu points (A through H).
4. Press the setup button once at menu point (H) to exit the Parameter Menu.

It is possible to skip menu points. Do not move the transmitter sticks when you are in a menu point you want to skip. Quickly press the setup button again to move past the menu point you want to skip.

⚠ **CAUTION:** Never fly the helicopter when the AR7200BX is in the Setup or Parameter Menu. Gyro control and transmitter stick controls are disabled when the AR7200BX is in the Setup or Parameter Menu.

A. Swashplate Cyclic Center Adjustment
NOTICE: *NEVER USE TRANSMITTER TRIMS WITH THE AR7200BX!*
The AR7200BX will interpret the trim as a control command, NOT as servo trim.

Menu point A allows you to easily adjust your servo centers at the flying field if the helicopter is wobbling during pirouettes or not climbing out straight on quick pitch inputs.

Parameter menu point (A) adjusts both the aileron and elevator servo centers without regard to the individual servos.
To adjust the aileron and elevator servo centers:
1. Move the aileron or elevator stick in the desired direction.
2. Repeatedly move the stick or hold the stick to move several trim steps at once.
3. To delete the trimming, move the tail stick in any direction.

IMPORTANT: Unlike digital trims in the transmitter, menu point (A) is not a separate trim function. If the new center position is saved once in Parameter menu point (A), it will also change the servo center position in Setup menu point (G).
Once the center position is saved in menu point (A), it is no longer possible to delete the trimming.
Press the setup button once to move to Parameter menu point (B).

B. Control Behavior

Menu point (B) allows you to select between different control behaviors for your helicopter, including the maximum rotation rate and exponential.
Factory setting is "Sport", which should be suitable for most pilots.
"Normal" has a decreased rotation rate for cyclic and tail controls, as well as increased exponential. When you are comfortable flying in "Normal", find your personal preference by increasing the Control Behavior one option at a time.
To use your own transmitter settings instead of the presets, select Status LED: Blue Solid.

Status-LED	Control Behavior
OFF	User Defined
Purple Solid	Normal
Red Flashing	Sport*
Red Solid	Pro
Blue Flashing	Extreme
Blue Solid	Transmitter

*=Factory Setting

If you select one of the preset Control Behaviors, do not use Exponential and/or Dual Rates in your transmitter. Slightly increasing servo travel in your transmitter should not cause any problems with the Control Behaviors.
The option "User Defined" allows you to define your own settings using the optional PC Software.
Press the setup button once to move to Parameter menu point (C).

C. Swashplate – Pitching Up Compensation

1. While in fast forward flight, apply sudden collective pitch inputs. The helicopter should remain in its horizontal path during climb and descend.
2. If the nose of the helicopter pitches up and down, increase the Pitch Up Compensation.
3. If the value is too high, the helicopter may feel sluggish. Try to find the lowest suitable setting.
4. If the helicopter still pitches up at the highest value, increase the swashplate gain (Dial 1).

5. If the helicopter continues to pitch up after increasing the swashplate gain, you may need to use faster and stronger servos or blades designed for flybarless helicopters.

Status-LED	Pitching Up Behavior
OFF	User Defined
Purple Solid	Very Low
Red Flashing	Low
Red Solid	Medium*
Blue Flashing	High
Blue Solid	Very High

*=Factory Setting

The option "User Defined" allows you to define your own settings using the optional PC Software.
Press the setup button once to move to Parameter menu point (D).

D. Tail Heading Lock Gain
Heading Lock gain determines how constant the tail will maintain the rotation rate from the rudder stick.
1. Start with Heading Lock gain set to low or very low and maximize the tail gain in your transmitter.
2. Increase the Heading Lock gain in the AR7200BX until the desired result are achieved.

Heading Lock Gain Too Low	Pirouettes are inconsistent in fast forward flight or in crosswind conditions.
Heading Lock Gain Too High	Fast tail-direction changes are more difficult to control. The tail may also move gently while hovering or flying around and will bounce back when stopping the rotation.

When the appropriate setting is determined, it is usually necessary to re-adjust the tail gyro gain in the transmitter.

Status-LED	Tail Heading Lock Gain
OFF	User Defined
Purple Solid	Very Low
Red Flashing	Low
Red Solid	Medium*
Blue Flashing	High
Blue Solid	Very High

*=Factory Setting

IMPORTANT: If the tail pirouettes and stops unevenly in both directions, set the tail gyro to Normal-Rate mode. Test whether the tail will drift in a particular direction during hover. If it does, adjust the tail link rod length so the tail rotor blades have the required compensation for pitch. If you adjust the tail link rod length, you must reset the tail rotor limits (Setup menu point (E)). If you chose "Transmitter" in the Control Behavior (Parameter menu point (B)), make sure you are not entering the free spinning range, which can cause inconsistent rotation.

The option "User Defined" allows you to define your own settings using the optional PC Software.

Press the setup button once to move to Parameter menu point (E).

E. Stick Deadband

Stick deadband is the range around the very center of the stick where the AR7200BX will not react. Depending on the calibration of the transmitter, the sticks may not be in the exact same center position each time they return to center. This can cause unwanted rotation on the axis of stick movement.

Stick Deadband Set Too Low	It is difficult to find a stick position where no input is sent to the AR7200BX. A setting too low can lead to a helicopter tipping on takeoff or a helicopter that is difficult to control.
Stick Deadband Set Too High	You will feel a large range of stick movement where you have no control. A setting too high can lead to difficult precision hovering.

Status-LED	Stick Deadband
OFF	User Defined
Purple Solid	1
Red Flashing	2*
Red Solid	3
Blue Flashing	4
Blue Solid	5

*=Factory Setting

The option "User Defined" allows you to define your own settings using the optional PC Software.
Press the setup button once to move to Parameter menu point (F).

F. Tail—RevoMIX
The AR7200BX can pre-compensate for torque variations on the tail before any noticeable change. RevoMIX relieves the tail control loop and improves tail performance on helicopters with insufficient tail authority and/or high powered electric helicopters.

To see the compensation direction:
1. Move the collective pitch, roll and elevator stick at any time. The tail rotor has to deflect to counter the rotor torque. The tail rotor blades deflect the least when the main rotor is at 0° pitch (the point where the main rotor produces the least torque).
2. Pitch positive or negative direction, move the aileron or elevator control. A deflection is added to the tail rotor to counter the torque. The height of the deflection depends on the collective pitch angles in Setup menu point K. The deflection may vary depending on the direction of pitch.
3. A helicopter with a clockwise rotation main rotor will steer the nose of the helicopter to the right. When control input is given, the tail slider/tail rotor will move slightly in a given direction.
4. Cycle through the options and find the direction that matches your model. You then have four options: Off, Low, High or By Computer.

Status-LED	Torque Precompensation
OFF	User Defined
Purple Solid	Off*
Red Flashing	Low—Normal Direction
Red Solid	High—Normal Direction
Blue Flashing	Low—Reverse Direction
Blue Solid	High—Reverse Direction

*=Factory Setting

The option "User Defined" allows you to define your own settings using the optional PC Software.

Press the setup button once to move to menu point (G).

G. Cyclic Response

Menu point (G) adjusts how aggressively the AR7200BX responds to cyclic commands (roll and pitch). Adjusting the cyclic response can reduce the linear control feeling of flybarless systems and make the helicopter response feel more like a flybar helicopter.

The factory setting is "Normal". To use the cyclic response feature, select "Slightly Increased" from the options. Gradually increase the cyclic response until you reach the desired level.

Cyclic Response Too High: Results in uncontrollable, inaccurate rotation and deteriorated stopping behavior.

The maximum amount of cyclic response is determined by many factors, including: heli size, swashplate servos, main rotor blades, head speed, servo power supply and helicopter setup.

The option "User Defined" allows you to define your own settings using the optional PC Software.

Press the setup button once to move to menu point (H).

Status-LED	Cyclic Response
OFF	User Defined
Purple Solid	Normal*
Red Flashing	Slightly Increased
Red Solid	Increased
Blue Flashing	High
Blue Solid	Very High

*=Factory
  Setting

H. Pitch Boost

Pitch boost is useful in 3D aerobatics when rapid pitch changes are necessary for certain flight maneuvers. Additional collective pitch will be added as you move the pitch stick faster.

Pitch boost will not exceed the maximum pitch value set in Setup menu point (K). Start from the "low" setting and gradually increase to the desired level.

The maximum amount of pitch boost is determined by many factors, including: maximum pitch values, pitch curve, swashplate servos, main rotor blades and head speed.

Pitch Boost Setting Too High: Can cause the rotor blades to stall when you input fast pitch commands. The collective pitch will feel slow, the opposite of the desired effect.

Status-LED	Pitch Boost
OFF	User Defined
Purple Solid	Off*
Red Flashing	Low
Red Solid	Medium
Blue Flashing	High
Blue Solid	Very High

*=Factory Setting

The option "User Defined" allows you to define your own settings using the optional PC Software.
Press the setup button once to exit the Parameter menu.

The First Flight

After powering on the receiver, wait for the AR7200BX to initialize completely (Short movement of swashplate servos and Status LED is Solid Blue or Solid Purple).

It is not necessary for the helicopter to be horizontal. Do not move the helicopter at any time during the initialization. You can lay the helicopter on its side to prevent shaking in wind.

⚠️ **CAUTION:** Always complete a control direction test with the transmitter and make sure the sensors are correcting in the proper directions when you tilt, roll and yaw the helicopter by hand.

It is normal for the swashplate to slowly move back to its original position after a stick input and for the servos to not move at the same speed as your control sticks.

When using a flybarless rotor head, you are controlling rotational rates while the AR7200BX controls the servos. You are not directly controlling the servos with the transmitter.

Heading Lock Mode: It is normal for the tail servo to:
1. Stay in its end position after a tail stick input or tail movement.
2. Not react immediately to a stick input.
3. Move to the endpoints with small stick inputs.

⚠️ **CAUTION:** Remove main and tail rotor blades before the first flight. Allow the motor/engine to run at all speeds. Watch for the swashplate to automatically tilt in one direction or begin to twitch at a specific speed. These are signs that the helicopter has mechanical vibration that will disturb the AR7200BX sensors.

Correct any sources of mechanical vibration before the first flight.
Just before lift off, make sure the swashplate is horizontal and the tail pitch slider is near centered.

Avoid excessive steering during lift off, otherwise the helicopter may tip over and crash!
Give direct collective pitch input to quickly lift the helicopter into the air. This will require some practice if you do not have experience with flybarless helicopters.

Version Display

After the AR7200BX initializes, the Status LED turns Solid Red for 3 seconds. The first two digits of the internal firmware version are displayed.

Representation of Values
The representation of all values using the menu LEDs is in binary. A lighting menu LED stands for a 1, an off LED for 0. The least significant bits are Ⓐ and Ⓗ.

Firmware Version
The firmware version consists of three values X, Y, and Z which are displayed for X and Y during the initialization, and for Z if the button is pushed during this initialization. X is displayed though menu LEDs Ⓐ - Ⓖ, Y through Ⓗ - Ⓝ and Z is using all LEDs Ⓐ - Ⓝ.

Data Version

The data version consists of two values X and Y, which are displayed at the same time through menu LEDs Ⓐ - Ⓖ for X and Ⓗ - Ⓝ for Y.

Hardware Version

The hardware version consists of two values X and Y, which are displayed at the same time through menu LEDs Ⓐ - Ⓖ for X and Ⓗ - Ⓝ for Y.

Servo Reference Chart

Servo	Swashplate				Tail	
	Frequency		Center-Position		Frequency	
	Color	Hz	Color	µs	Color	Hz
SPMSH3000	Red Flashing	65 Hz	Blue Solid	1520 µs	Purple	50 Hz
SPMSH3020	Blue Solid	200 Hz	Blue Solid	1520 µs	Red Flashing	165 Hz
SPMSH5000	Blue Solid	200 Hz	Blue Solid	1520 µs	Red Flashing	165 Hz
SPMSH5010	Blue Solid	200 Hz	Blue Solid	1520 µs	Red Flashing	165 Hz
SPMSH6010	Red Flashing	65 Hz	Blue Solid	1520 µs	Purple	50 Hz
SPMSH6040	Blue Solid	200 Hz	Blue Solid	1520 µs	Red Flashing	165 Hz
SPMSH6080G	Blue Solid	200 Hz	Blue Solid	1520 µs	Blue Flashing	333 Hz
SPMSH5020G	Blue Solid	200 Hz	Blue Solid	1520 µs	Solid Red	270 Hz

AR7200BX Overview

SETUP MENU *Menu LED solid*

Status-LED:		OFF	Purple	Red Flashing	Red Solid	Blue Flashing	Blue Solid
A	**Mounting orientation**				upright (vertical)		flat (horizontal)*
B	Swashplate servo - **frequency**	**User defined**	50 Hz*	65 Hz	120 Hz	165 Hz	200 Hz
C	Tail servo - **center position pulse length**	**User defined**	960 µs		760 µs		1520 µs*
D	Tail servo - **frequency**	**User defined**	50 Hz*	165 Hz	270 Hz	333 Hz	560 Hz
E	Tail servo - **rotor endpoints**	Tail stick - move to right endpoint and wait/left endpoint and wait					
F	Tail - **sensor direction**				normal*		reversed
G	Swashplate - **servo centering**	reference position	ELE center pos.		AIL center pos.		PIT center pos.
H	Swashplate - **mixer**	**User defined**	mechanical	90°	120°*	140°	140° (1=1)
I	Swashplate - **servo directions**	nor|rev|rev	nor|nor|rev*		nor|rev|nor		nor|nor|nor
J	Swashplate - **cyclic pitch geometry**	Aileron stick – adjust 6° cyclic pitch on the roll axis (blades aligned with fuselage)					
K	**Collective pitch range**	Collective stick on max and min position and use tail stick to adjust desired pitch					
L	Swashplate - **cyclic limit**	Move aileron, elevator and pitch sticks – adjust max limits with tail stick					
M	Swashplate - **sensor directions**	rev | rev	rev | nor		nor | rev		nor | nor*
N	**Pirouette optimization direction**				normal*		reversed

*=Factory Setting

PARAMETER MENU *Menu LED is flashing quickly*

Status-LED:		OFF	Purple	Red Flashing	Red Solid	Blue Flashing	Blue Solid
A	Swashplate - **cyclic center adjustment**	Aileron and elevator stick – reset with tail stick					
B	**Control behavior**	**User defined**	normal	sport*	pro	extreme	**transmitter**
C	Swashplate - **pitching up behavior**	**User defined**	very low	low	medium*	high	very high
D	Tail - **HeadingLock gain**	**User defined**	very low	low	medium*	high	very high
E	**Stick deadband**	**User defined**	1	2*	3	4	5
F	Tail - **torque precompensation**	**User defined**	off*	low - nor	high - nor	low - rev	high - rev
G	**Cyclic response**	**User defined**	normal*	slightly increased	increased	high	very high
H	**Pitch boost**	**User defined**	off*	low	medium	high	very high

*=Factory Setting

1-Year Limited Warranty

What this Warranty Covers

Horizon Hobby, Inc., (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 years 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, or (v) Products not purchased from an authorized Horizon dealer.

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.

Purchaser's Remedy

Horizon's sole obligation and purchaser's sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY.

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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 direct your email to productsupport@horizonhobby.com, or call 877.504.0233 toll free to speak to a Product Support representative. You may also find information on our website at www.horizonhobby.com.

Inspection or Services
If this Product needs to be inspected or serviced, 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 under the Support tab. 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.

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. 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.

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 cashiers 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/Service/Request/.

Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Address	Phone Number/Email Address
United States of America	Horizon Service Center (Electronics and engines)	4105 Fieldstone Rd Champaign, Illinois 61822 USA	877-504-0233 Online Repair Request: visit www.horizonhobby.com/service
	Horizon Product Support (All other products)	4105 Fieldstone Rd Champaign, Illinois 61822 USA	877-504-0233 productsupport@horizonhobby.com
United Kingdom	Horizon Hobby Limited	Units 1-4 Ployters Rd Staple Tye Harlow, Essex CM18 7NS United Kingdom	+44 (0) 1279 641 097 sales@horizonhobby.co.uk
Germany	Horizon Technischer Service	Christian-Junge-Straße 1 25337 Elmshorn Germany	+49 (0) 4121 2655 100 service@horizonhobby.de
France	Horizon Hobby SAS	14 Rue Gustave Eiffel Zone d'Activité du Réveil Matin 91230 Montgeron	+33 (0) 1 60 47 44 70 infofrance@horizonhobby.com
China	Horizon Hobby – China	Room 506, No. 97 Changshou Rd. Shanghai, China 200060	+86 (021) 5180 9868 info@horizonhobby.com.cn

FCC Information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, 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.

Customer Service Information

Country of Purchase	Horizon Hobby	Address	Phone Number/Email Address
United States of America	Sales	4105 Fieldstone Rd Champaign, Illinois 61822 USA	(800) 338-4639 sales@horizonhobby.com
United Kingdom	Horizon Hobby Limited	Units 1-4 Ployters Rd Staple Tye Harlow, Essex CM18 7NS United Kingdom	+44 (0) 1279 641 097 sales@horizonhobby.co.uk
Germany	Horizon Hobby GmbH	Christian-Junge-Straße 1 25337 Elmshorn Germany	+49 4121 46199 60 service@horizonhobby.de
France	Horizon Hobby SAS	14 Rue Gustave Eiffel Zone d'Activité du Réveil Matin 91230 Montgeron	+33 (0) 1 60 47 44 70 infofrance@horizon-hobby.com
China	Horizon Hobby – China	Room 506, No. 97 Changshou Rd. Shanghai, China 200060	+86 (021) 5180 9868 info@horizonhobby.com.cn

Compliance Information for the European Union

Declaration of Conformity

(in accordance with ISO/IEC 17050-1)

No. HH2011111302

Product(s):   AR7200BX 7CH Flybarless Control System
Item Number(s):   SPMAR7200BX
Equipment class: 1

The object of declaration described above is in conformity with the requirements of the specifications listed below, following the provisions of the European R&TTE directive 1999/5/EC:

CE

EN 301 489-1 V1.7.1: 2006
EN 301 489-17 V1.3.2: 2008

Signed for and on behalf of:
Horizon Hobby, Inc.
Champaign, IL USA
November 13, 2011

Vice President
International Operations and Risk Management
Horizon Hobby, Inc.

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 designated collections 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.