

Futaba

3D

Brushless Electronic Speed Controller for helicopter/airplane

Designed for 700-800 class helicopter

MC-9200H/A

Instruction manual



NOTE: Always read this manual before using the MC-9200H/A ESC.

Before using the MC-9200H/A

- * Improper handling of the LiPo battery is extremely dangerous. Use the battery in accordance with the instruction manual supplied with it.
- * Some commercial motors may not match advance timing adjustment, etc. of the MC-9200H/A.
- * Always solder the MC-9200H/A battery connection cord to a connector matched to the battery used. Do not use the ESC in a temporarily connected state.

Mounting precautions

⚠WARNING

Always use the MC-9200H/A within the operating conditions range given in the specifications.

Be sure that the battery polarity is correct.

Reverse connection will cause sparking and immediate destruction or burning inside the ESC.

⚡Never short circuit even places where there is no battery, motor, receiver, or connector.

Short circuits will cause sparking and immediate destruction or burning inside the ESC.

Mount the ESC so that the soldered part of the cord does not touch conductive parts.

⚠Mount the receiver and receiver antenna away from the MC-9200H/A, motor cord, power cord, drive battery and other parts through which a large current flows.

If the receiver is erroneously operated by noise, control will be lost and is extremely dangerous.

⚠Insert the connection connectors fully.

If a connector works loose due to vibration, control will be lost and is extremely dangerous.

⚠Mount the MC-9200H/A where it will not be exposed to oil, grease, and water.

⚠Mount the MC-9200H/A to the fuselage where there is an ample flow of cooling air.

Do not wrap the MC-9200H/A body in aluminum foil.

Such wrapping will cause a loss of cooling effect and the specified performances will not be obtained.

⚠Install the motor securely. Also clamp all the cables.

CAUTION

Do not disassemble the ESC. Do not open the case of the product.

Opening the case will damage the interior. In addition, repair will become impossible.

Operating precautions

⚠WARNING

Be careful that no part of your body touches parts that rotate during operation.

Unexpected rotation may cause serious injury.

Depending on the receiver, the motor may rotate the instant the power is turned on.

⚠Always remove the battery when not using the ESC.

If the switch is turned on erroneously, the propeller will rotate unexpectedly or a fire may start.

⚠Before flying, check operation of the ESC and all the control surfaces.

When not set properly and when a different model is selected, control will be lost and is extremely dangerous.

⚠Do not touch the motor and ESC immediately after flight.

It will cause a burn.

OFF: Set the throttle stick to the stop position and turn off the power switches in receiver → transmitter order.

If performed in reverse, the propeller may rotate unexpectedly and is extremely dangerous.

⚠Always turn the power switches ON and OFF in the following order:

ON: Set the throttle stick to the stop position and turn on the power switches in transmitter → receiver order.

Connections



There is no polarity. If the direction of rotation is opposite, replace any two of the three.

Red is positive and black is negative. It is dangerous to make a mistake in polarity.

The attached bifurcated cord is not normally used. Used when there is an update of SBM-2.

SBM-2 LED: Flashes red and green when telemetry is communicating normally.

SBM-2: Connect to display telemetry data on the transmitter.

To S.BUS2

To CH3

To free port

Throttle

Power is supplied to the Receiver.

Not use

Emergency battery

Normally, the Receiver power is supplied from the ESC, and if the drive battery drops, it becomes an emergency power supply. Set the BEC voltage (only the servo works) slightly higher than this battery voltage. When the drive battery is connected, the emergency battery is charged.

Example: 6.6 V LiFe battery
BEC voltage 6.9 V

[Specification]	
Function	MC-9200H/A
Auto recognition of cell	
Peak current	200 A
Size	105 x 50x 36 mm
Weight	325 g
Cell	LiPo 6-14 cells 22.2 ~ 51.8 V
BEC	5 ~ 8 V / 10 A

Reverse the throttle channel (CH3) of the Futaba transmitter.

ESC/Transmitter Calibration

Perform this calibration when using for the first time or when changing the set. Let ESC read the operating range of throttle.

⚠Before calibration, set the throttle curve of the transmitter to a straight line of -100% to 100%, and set all throttle-related mixing to INH. Make sure that the throttle amount corresponding to the maximum throttle endpoint and the minimum throttle endpoint of the transmitter is 100% and 0%, respectively.



Turn on the transmitter and move the throttle stick to the high position.

Connect a battery to the ESC, the motor will sound " 1-2-3" to indicate the ESC is powered on normally.

5 seconds later, the motor will beep two short beeps to indicate the maximum throttle end point is accepted.

Move the throttle stick to the bottom position within 3 seconds after you hear those two beeps, the minimum throttle position will be accepted 1 second later.

The motor will beep "Number" beeps to indicate the number of Lipo cells you have plugged in.(1 BB indicates 5 cells, B indicates 1 cell)

The motor will beep a long beep to indicate the calibration is complete.

Precautions about Battery F/S

The BEC voltage (voltage supplied to the receiver) of this ESC is output at about 5.0 V for a few seconds at startup, and then the BEC voltage set by the user is output. Therefore, if the battery fail-safe voltage of the FASSTest and T-FHSS Air receiver is set to 5.0 V or higher, the Battery F/S function works even though the battery is sufficient.

* The battery fail-safe voltage of FASST and S-FHSS receivers is fixed at 3.8 V, so there is no problem.

When using with FASSTest or T-FHSS Air, make one of the following settings.

1. Reduce the battery fail-safe voltage to 4.8 V or less.
2. Turn off the battery fail-safe setting.

* As a method of monitoring the battery voltage, check the voltage of the receiver with a telemetry alarm.

LED display in case of trouble			
Trouble	Warning Tone	LED	Possible causes
Input voltage is abnormal	BB ! BB ! BB !	Red LED flashes	The input voltage is not within the regulated range
throttle signal is lost	B — ! B — ! B — !	Red LED flashes	The ESC doesn’ t detect any throttle signal input.
Throttle stick is not moved to the bottom position	B ! B ! B ! B !	Red LED flashes	The ESC detects that the throttle is above 0%.
Throttle range is too narrow	BBBBB	Red LED flashes	You set the throttle range too narrow during the ESC/Radio Calibration.
Thermal protection is activated	-	Blue LED flashes a short, single flash that repeats	The internal temperature of the ESC goes above the regulated temperature range.
Low-voltage cutoff protection is activated	-	Blue LED flashes a short, double flash that repeats	The operating voltage goes below the preset cutoff voltage.
Over-current protection is activated	-	Red LED turns on solid	The operating current goes above the regulated value.



Throttle Low

Turn on the transmitter, move the Throttle stick to the low position, and turn on the throttle cut switch.

Connect a battery to the ESC, the motor will sound " 1-2-3" to indicate the ESC is powered on normally.

The motor will beep "Number" beeps to indicate the number of Lipo cells you have plugged in.(1 BB indicates 5 cells, B indicates 1 cell)

Long beep sounds to indicate that the ESC is ready.

Protections

• Power-on Abnormal Voltage Protection

The ESC will measure the input voltage when it’ s connected to a battery or power supply. If the input voltage is not within the regulated range, it will take the voltage as an abnormal voltage and then activate the protection, flash Red LED and beep a series of beeps.

• Start-up Protection

The ESC will monitor the motor speed (RPM) during the start-up process. When the speed stops increasing or the speed increase is not stable, the ESC will take it as a start-up failure. At that time, if the throttle amount is less than 15%, then the ESC will automatically try to restart up; if it is larger than 20%, then you need to move the throttle stick back to the bottom position and then restart up the ESC. (Possible causes of this problem: poor connection/ disconnection between the ESC and motor wires, propellers are blocked, etc.)

• ESC Thermal Protection

The ESC will gradually reduce the output but won’ t cut it off completely when the ESC temperature goes above 110° . For ensuring the motor can still get some power and won’ t cause crashes, so the maximum reduction is about 50% of the full power. The ESC will gradually resume its maximum power after the temperature lowers down. In addition, the ESC temperature cannot exceed 70° when it’ s powered on. Otherwise, it cannot be started up but flashes Blue LED and beeps a series of beeps to indicate the ESC temperature is too high. (Here we are describing the ESC’ s reaction in the “Soft Cutoff” mode, while if in the “Hard Cutoff” mode; it will immediately cut off the power.)

• Throttle Signal Loss Protection

When the ESC detects loss of signal for over 0.25 second, it will cut off the output immediately to avoid an even greater loss which may be caused by the continuous high-speed rotation of propeller. The ESC will resume the corresponding output after normal signals are received.

• Overload Protection

The ESC will cut off the power/output and automatically restart itself when the load suddenly increases to a very high value. If the load still remains high or the motor still remains out of sync, then it will completely cut off the power/output.

• Low-voltage Cutoff Protection

When the operating voltage goes below the preset cutoff voltage, the ESC will gradually reduce the output but won’ t cut it off completely. For ensuring the motor can still get sufficient power to land the aircraft safely, so the maximum reduction is about 50% of the full power. You need to change another fully charged battery to resume the operation when the low-voltage cutoff protection is activated.

• Over-current Protection

During use, the ESC will cut off the output immediately if the current exceeds the regulated value and then resume it quickly; the ESC will cut off the output completely and won’ t resume it if the regulated value is exceeded again.

