Dear customer,

Thanks for purchase of our Brushless Motor Controller. This is a new generation of sensorless speed controllers, with latest humanize software design, especially for **ALL** types of brushless motor.

Please read and pay carefully attention to the following instructions before you start to work with your motor and controller.

Wires Connection:

The speed controller can be connected to the motor by soldering directly or with high quality connectors. Always use new connectors, which should be soldered carefully to the cables and insulated with heat shrink tube. The maximum length of the battery pack wires shall be within 6 inches.

- Solder controller to the motor wires.
- Solder appropriate connectors to the battery wires.
- Insulate all solder connectors with heat shrink tubes.
- Plug the "JR" connector into the receiver throttle channel.
- Controller Red and Black wires connects to battery pack Red and Black wires respectively.

Installing the Controller:

Install the controller in the model so that it is free from vibration and shock, using Velcro or double sided foam tape. **Must be,** make sure there is sufficient cooling for the motor and controller by ducting air through cooling holes from outside airflow.

Failure to do it, will be caused motor or controller damaged.

Normal start up:

Switch on transmitter and check throttle settings are **+/-100%** (for computer radio).

For Futaba Radio programs the "Servo Reverse" function on the throttle channel.

Pulls throttle stick in down or brake position;

- Transmitter switches "On",
- Connects battery pack to the controller
- Receiver switches "On" (BEC switch on).
- You will hear one beep for **Brake on** or two tones for **Brake off.**
- The position of full throttle will be calibrated automatically.
- **You motor now is ready to run.**

Factory default settings;

Brake	**:**	Off
Battery type	**:**	Li-Po Auto detect
Low voltage protect :		Reduce power
under voltage	**:**	3.2V / cell
Acceleration	**:**	Enable
Timing	**:**	Auto
Frequency	**:**	8KHz
Active RPM Control:		**Off**

How to program your controller:

- Switch on the transmitter and push to the throttle stick to full throttle.
- Connects the motor battery pack and turns on the receiver (BEC) switch.
- Waits for 5 sec, you'll hear tones; setup mode is entered: __ --
- When you hear the desired tones, pull the throttle down, then you'll hear two confirmation tones. The setting is now memorized.
- You can only change one setting at a time, if you need to change more settings, disconnect the motor battery pack and wait 5 second, and repeat above procedure for next setting.
- You can exit the programming mode at any time if you pull out the battery connector from ESC.

1. Setting up the propeller Brake on or off

Follow above procedure enter to the programming mode.

If you pull the throttle stick to off within 5 sec, **Brake** will be changed. (ON → OFF, or OFF → ON)

2. Battery type

(select battery type which is being used in your model)

NiMH:

LiPo Auto Auto detect

3. Rotation reverse

This function is to change the motor rotation direction.

(for example: Right to Left, or vice versa)

Reverse motor rotation

4. Acceleration

When gearbox drive system is used. It's highly recommended to enable the Soft start.

Because it's protecting the gearbox not to damage especially large diameter of propeller is used.

Disable the soft start function when direct drive system is used or being in speed competition

Low:

High:

5. Low Voltage Protect

If the motor battery pack drops to the programmed cut-off voltage, the controller will either ignore, reduce the motor speed or stop the motor to ensure that there is enough power for the receiver and servos. Either one is active, you can resume to normal operation by pull down the throttle stick and push up again, **but remember that it's time to land you model!**

Ignore

(motor won't stop until battery total gone)

reduce power:

(reduce motor speed)

Stop:

(stop motor)

6. Timing

The controller has three timing modes; Automatic works perfect for **ALL** types of brushless motor. But for some brands or homemade brushless motors, you have to set the right timing for optimal efficiency and power; 7 degree for multi-pole motors, 30 degree for out runner motors.

Automatic:

Medium

High

7. Switching Frequency

The controller has two switching frequency modes. 8KHz is good for ALL types of two pole motor, 16KHz is good for multi pole motors.

8 kHz:

16 kHz

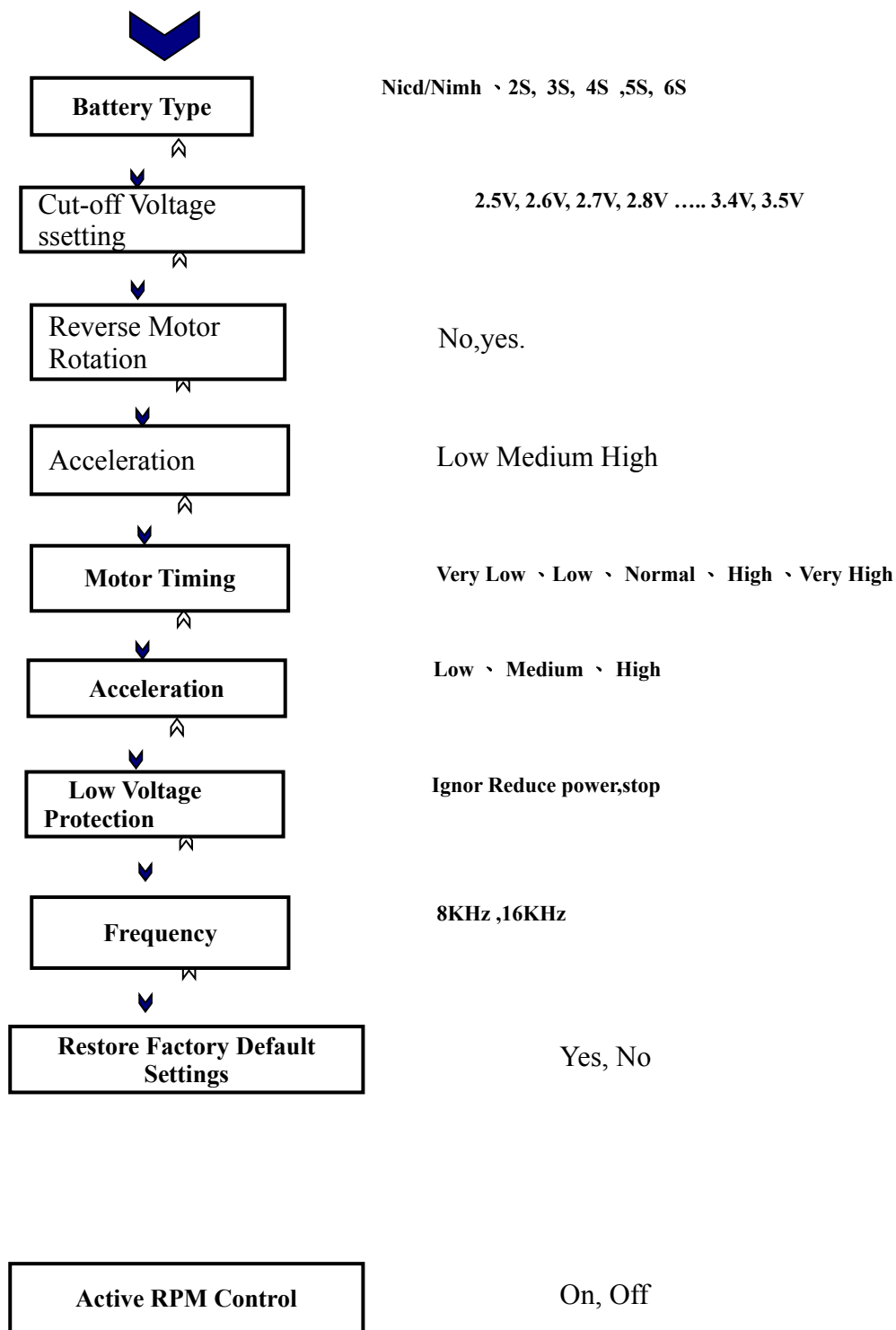## 8. Restore Factory Default Setting

9. Active RPM Control

On

Off

Program Box Set Flow Chart

Hextronick
Program Box 1.0
BOX

45A-SBEC
Ver: XXXXXX

Battery Type	**Nicd/Nimh 、2S, 3S, 4S ,5S, 6S**
Cut-off Voltage ssetting	**2.5V, 2.6V, 2.7V, 2.8V ….. 3.4V, 3.5V**
Reverse Motor Rotation	No,yes.
Acceleration	Low Medium High
Motor Timing	**Very Low 、Low 、 Normal 、 High 、Very High**
Acceleration	**Low 、 Medium 、 High**
Low Voltage Protection	**Ignor Reduce power,stop**
Frequency	**8KHz ,16KHz**
Restore Factory Default Settings	Yes, No
Active RPM Control	On, Off

Caution!:

Warning! Model aircraft equipped with high power motor can kill.

High power motor systems can be very dangerous! High currents can

heat wires and batteries, causing fires and burning skin or anything.

Follow the wiring connection carefully!

Always fly at a sanctioned field. Never fly over or near spectators. Even though this controller is equipped with a safety arming program, you should still use caution when connecting the main battery.

Notice for Operation:

- Temperature overload protection is built into the speed controller, it turns off the motor immediately when the temperature reaches 212°F/100°C.
- Do Not connect the controller to just 'any' kind of power sources. Take care to ensure that the right polarity of NiCd, NiMH or Li-Poly power packs.
- Do Not connect the motor battery to the wrong polarity, the controller will be seriously damaged.