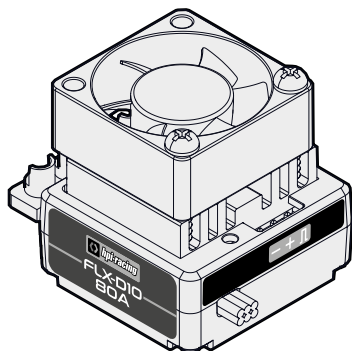




FLX-D10 80A SENSORED FLUX ESC Instruction Manual

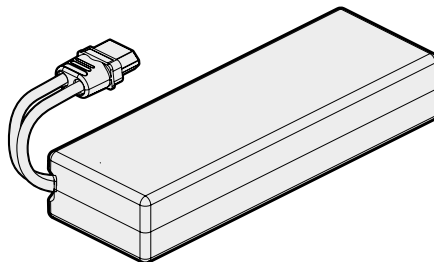
ESC



161065

FLX-D10 80A Sensored Flux ESC

Equipment Needed

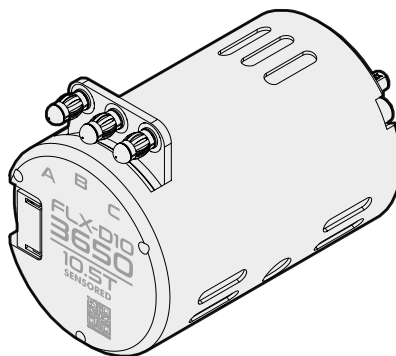


2 cell LiPo 7.4V battery pack

Compatible Products

161066

*FLX-D10-3650 10.5T
Sensored Flux Motor*



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HPI RACING A/S
Jegindavej 21
DK-6800 Viborg

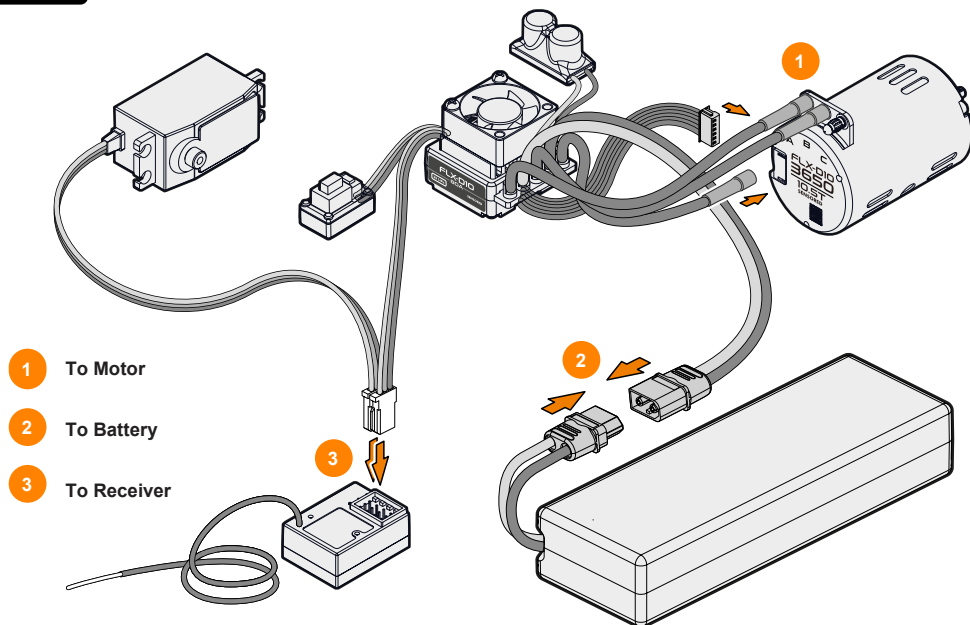
info@hpiracing.com

161065-006

1 Getting Started

FLX-D10 80A
SENSORED FLUX ESC

1-1 Connections



Cautions

Failure to follow these instructions can damage your kit, and cause serious bodily injury or death.



Cautions

This is an extremely powerful brushless motor system. We strongly recommend removing your tires for your own safety and the safety of those around you before performing calibration and programming functions with this system. Please keep your hands, hair, and loose clothing clear from the gear train and wheels of an armed high performance system.

Rubber tires will "expand" to extreme size on a high speed vehicle. **DO NOT** hold the vehicle in the air and run it up to full throttle. Tire failures at that speed can cause serious injury! Make sure your tires are securely glued to the rims and check them often!

Always disconnect the battery from the ESC when you are finished using your vehicle. The switch on the ESC controls the power that is delivered to the receiver and servos. The controller will always draw current when it is connected to the battery and will completely discharge batteries if they are connected for long durations. This may cause failure of your batteries.

2-1 ESC Setup

You must setup the ESC before running the first time. After the initial setup, it is not required before every run. Please read through the instructions and get familiar with the procedure before starting setup. The setup process moves quickly, and it will help you to be ready for each step.

2-1-1 ESC Calibration

The ESC must be calibrated before first use. Calibration must also be performed whenever a new transmitter or receiver is installed. If the ESC is not calibrated correctly, it may not operate properly.

We strongly recommend activating the transmitter's Fail-Safe (F/S) function. Set the throttle fail-safe to OFF (no throttle signal) or to the Neutral Position. This ensures that the motor stops if the receiver loses the transmitter signal.

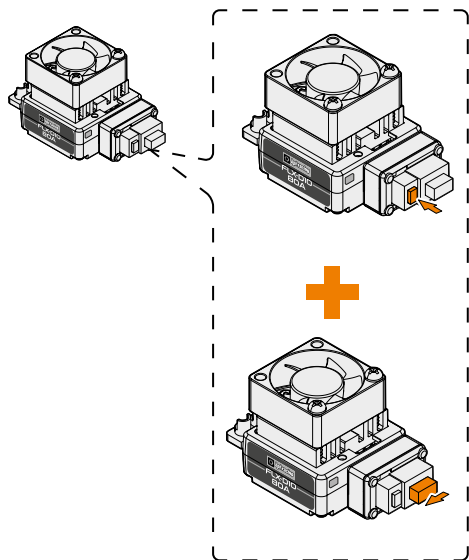
Follow the steps below to calibrate the throttle:

1

Switch on the transmitter. Set the throttle channel parameters "D/R," "EPA," and "ATL" to 100%. For transmitters without an LCD display, turn the corresponding controls to their maximum positions. Set the throttle "TRIM" to 0. For transmitters without an LCD display, turn the corresponding trim control to the neutral position. If the transmitter is already at its default settings, this step can be skipped.

2

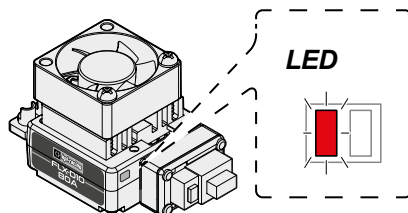
Switch off the ESC if it is not already switched off. Press and hold the SET button, then switch on the ESC while continuing to hold the button.



3

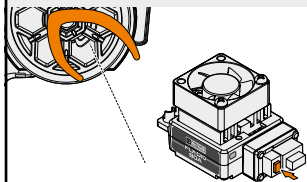
The red LED on the ESC will immediately begin flashing and the motor will beep. Release the SET button immediately. If the button is not released within 3 seconds, the ESC will enter parameter programming mode. If this happens, restart the procedure from Step 2.

Note: The motor beep may be relatively quiet. If necessary, use the LED indication instead.



Three throttle positions will now be calibrated: Neutral, Full Throttle, and Full Brake.

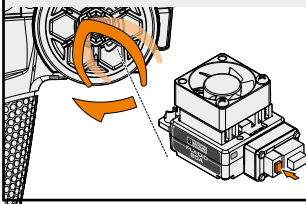
- 4** Leave the throttle trigger in the Neutral Position and press the SET button once.



- 5** The green LED will flash once and the motor will beep once, indicating that the Neutral Position has been saved.

LED  x1
GREEN

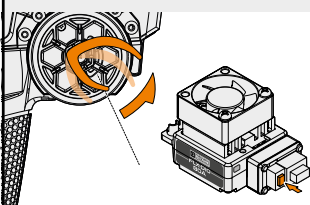
- 6** Move the throttle trigger to the Full Throttle Position and press the SET button once.



- 7** The green LED will flash twice and the motor will beep twice, indicating that the Full Throttle Position has been saved.

LED  x2
GREEN

- 8** Move the throttle trigger to the Full Brake Position and press the SET button once.



- 9** The green LED will flash three times and the motor will beep three times, indicating that the Full Brake Position has been saved.

LED  x3
GREEN

The throttle range calibration is now complete, and the motor can be operated normally.

2-2 LED Status

1. During the Start-up Process

- The GREEN LED flashes "X" number of times indicating the number of LiPo cells you have connected to the ESC.
- The GREEN LED turns on solid indicating the throttle trigger is at the neutral position.
- The RED LED flashes a short, single flash and repeats (☆, ☆, ☆), along with a beep from the motor if the ESC doesn't detect any throttle signal.

2. During Operation • The GREEN LED turns on solid indicating the throttle trigger is at the neutral position. • The RED LED turns on solid when your vehicle runs forward. The GREEN LED comes on when pulling the throttle trigger to the full (100%) throttle endpoint. • The RED LED turns on solid when you reverse, the GREEN LED will also come on when pushing the throttle trigger to the full reverse endpoint and setting the "maximum brake force" to 100%.

3. ESC Protection is Activated • The RED LED flashes a short, single flash and repeats (☆, ☆, ☆) indicating the low voltage cut-off protection is activated. • The GREEN LED flashes a short, single flash and repeats (☆, ☆, ☆) indicating the ESC thermal protection is activated.

2-3 Fail-Safe Function

If the temperature of the ESC is too high, the Thermal Protection Function will activate. Once the ESC has cooled down to normal temperature, it will work as normal.

3 ESC Programmable Settings

3-1 Available Parameters

These are the ESC parameters that can be customised.

3-1-1 Running Mode

- FWD/Brake - This mode offers Forward and Brake functions only. This mode is commonly required at race events.
- FWD/REV/Brake - This mode offers Forward, Brake and Reverse. Note, The Reverse function uses a soft start "Double click" function which will only allow reverse to be activated once the motor has stopped moving forward.
- Rock Crawler - This mode allows instant switching from forward to reverse for quick car control. The brakes are applied when the throttle returns to neutral at the force and rate of the Drag Brake settings. Drag Brake Force of 100% is recommended for Rock Crawling.

3-1-2 Auto LiPo Cut Off

The Auto-LiPo cut off value is changed depending on the type of battery you will be using in your RC car. When using a Lithium based pack please select the suitable cell voltage for the low voltage protection of your battery pack.

WARNING: Never use the value "No Protection" if you are using a Lithium battery! The Flux ESC will monitor the battery output voltage. If the voltage drops lower than the preset threshold for more than 2 seconds, the output power will be reduced by 50%. This will allow enough time to bring the car back to you. After 10 seconds the Flux ESC will cut output power completely.

3-1-3 Punch

Punch can be used to control overall motor response in relation to the throttle input. The higher the set value, the faster the acceleration. Lower punch settings are advised for softer starts, lower traction, or to help with motor hesitations or stuttering when throttle is applied rapidly.

3-1-4 Drag Brake Force

This mode allows the setting of an automatic drag brake when the throttle stick is returned to neutral, simulating the slight braking effect of a brushed motor while coasting.

3-1-5 Max Brake Force

This mode sets the brakes force applied when the throttle is at full brake. A very large brake force may slow the car quickly but be aware it can also do damage to the cars drivetrain.

3-1-6 Max.Reverse Force

This mode will set the reverse power applied by the ESC. The higher the value the quicker the reverse function will be.

3-1-7 Motor Direction

This setting is used to change the rotation direction of the motor.

3-1-8 Boost Timing

Boost timing automatically increases motor timing as RPM rises. This provides smoother acceleration and higher top speed through the mid and upper RPM range.

Note: Higher timing settings increase motor speed and performance, but also increase motor and ESC temperature. Monitor temperatures carefully during operation.

3-1-9 Turbo Timing

Turbo timing adds extra motor timing at high throttle after a short delay. This gives an additional burst of speed and power on long straights.

Note: Higher timing settings increase motor speed and performance, but also increase motor and ESC temperature. Monitor temperatures carefully during operation.

3-1-10 Turbo Delay

Turbo delay sets how long the ESC waits before activating Turbo timing after full throttle is applied. Longer delay provides smoother power delivery, while shorter delay gives faster turbo response

3-2 Programming the ESC

1. With the ESC switched off; Turn on the transmitter
2. Connect ESC to battery
3. Hold the SET button, Switch on the ESC
4. Red LED flashes
5. The Green LED will then flash up to 10 times. Release the set button after the number of flashes corresponding to the parameter you want to change (see table below)

Number of flashes before releasing Set Button	Parameter Mode
1	Running Mode
2	Auto LiPo Cut Off
3	Punch
4	Drag Brake Force
5	Max. Brake Force
6	Max. Reverse Force
7	Motor Direction
8	Boost Timing
9	Turbo Timing
10	Turbo Delay

6. Once the parameter is selected and the set button is released, the red LED will flash, and the number of flashes indicates the currently set option number. **See table 3-2-2**
7. To change, press the set button to choose the option, the times the red LED blinks indicates the option number you are going to select. Release set button once desired options is indicated. **See table 3-2-2**

e.g.

- Red LED flashes 1times ="Forward with brake"
- Red LED flashes 2 times = "Forward / Reverse with brake"
- Red LED flashes 3 times ="Forward and Reverse"



Tip

The motor will emit a “beep” at the same time as the LED flashes, making each indication easier to identify.

When N ≥ 5, a single long LED flash (accompanied by one long motor beep) represents the number 5. For example, one long LED flash with one long beep “beep—” indicates Item 5. One long flash followed by one short flash, accompanied by one long beep and one short beep “beep—beep”, indicates Item 6. Similarly, Item 7 is indicated by “beep—beep-beep”, Item 8 by “beep—beep-beep-beep”, and so on.

8. Finish programming, switch off the ESC, and then switch it on

3-2-2 Default Settings/Options

Parameter Mode		1	2	3	4	5	6	7	8	9
1	Running Mode	Forward with brake	Fwd/REV/ Brake	Rock Crawler						
2	Auto LiPo Cut Off	Disable	Auto 2.6V/Cell	Auto 2.8V/Cell	Auto 3.0V/Cell	Auto 3.2V/Cell	Auto 3.4V/Cell			
3	Punch	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	
4	Drag Brake Force	0%	5%	10%	20%	40%	60%	80%	100%	
5	Max. Brake Force	25%	50%	75%	100%					
6	Max. Reverse Force	25%	50%	75%	100%					
7	Motor Direction	CCW	CW							
8	Boost Timing	0°	4°	8°	12°	16°	20°	24°	28°	32°
9	Turbo Timing	0°	4°	8°	12°	16°	20°	24°	28°	32°
10	Turbo Delay	Instant	0.05s	0.10s	0.15s	0.20s	0.30s	0.50s	0.70s	1.00s



Default Setting

3-2-1 Using a Program Box

Alternatively, your HPI Flux ESC is fully compatible with the HOBBYWING LED Program Box which allows you to quickly change settings easily with the LED screen. Available separately.

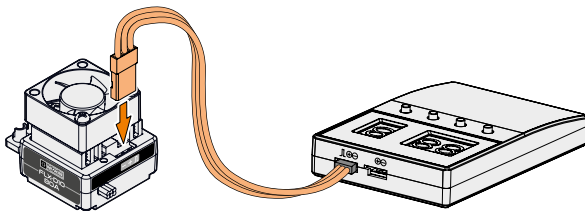


1

Connect the Program Box using a separate programming cable as shown in the diagram.

Then connect the ESC to the battery and turn it on.

Use the "ITEM" and "VALUE" buttons on the program card to select and change the values. Press "OK" to save the parameters.



3-2-3 Factory Reset

Restore the ESC to the factory settings using the Setup Button.

Turn on the transmitter, then turn on the ESC. Press and hold the SET button of the ESC switch for over 3 seconds. RED & GREEN LEDs flash simultaneously indicating you have successfully restored the default values. To save the changes you must switch off the ESC. When you next switch it back on your settings will be back in the default mode.

Restore the ESC to the factory settings using the LED program card.

Once the LED program card is connected to the ESC, press the "RESET" key and then press "OK" to save to restore the factory settings.

3-3 Driving in Wet Conditions

This HPI Electronic Speed Controller is not designed with water protection so it should not be used in wet conditions.



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