PICHLER XQ Plus Brushless Speed Controller Instruction Manual

Contents

XQ+ Manual

Thank you for purchasing a Pichler XQ+ controller. In the following manual you will learn everything necessary to set up and operate your new ESC correctly.
For the most recent version of this manual please visit the product page in our online shop.

Important Warnings

- ZTW is not responsible for your use of this product, or any damage or injuries you may cause or sustain as a result of its usage.
- Always place safety as priority when you use the product.
- An electric motor that is connection with battery pack and ESC may start unexpectedly and cause serious danger. Always treat them with enough respect.
- We recommend you to remove the propeller when you working on the plane that with power source connected.
- Observe all local laws when you fly a RC airplane.
- Never fly over others or near crowds.

Key Features

1. The holes on both sides of the ESC and the unique fan guard structure make the ESC beer heat dissipation.

2. Adopting new generation craft on the MOSFET, low heat generation, withstand large current instantly, and high reliability.
3. Adopting high performance 32 bit microprocessor, stronger computing ability and faster running speed.
4. Super smooth start-up and accurate throttle linearity.
5. Higher driving efficiency and more energy-saving.
6. Two modes: normal and so acceleration. It is compatible with normal fixed-wing and EDF jet airplanes, please ensure to select the “Soft” acceleration when using EDF jet airplanes.
7. Multiple protections: start-up, over-heat, low-voltage cutoff, overload, over-current and signal loss.
8. Support high RPM motors, and compatible with most motors in the market.
9. The ESC has a separate programming interface to connect with LCD programming card or App adaptor for parameter setting.(Extra ZTW App adaptor or LCD program card needed)
10. The ESC has data returning feature, it can send data in real-me: current, voltage, temperature, RPM, throttle and ESC status. And you can check the data via ZTW App or LCD program box G2 in real-me.(The ESC under 65A doesn’t have this feature)

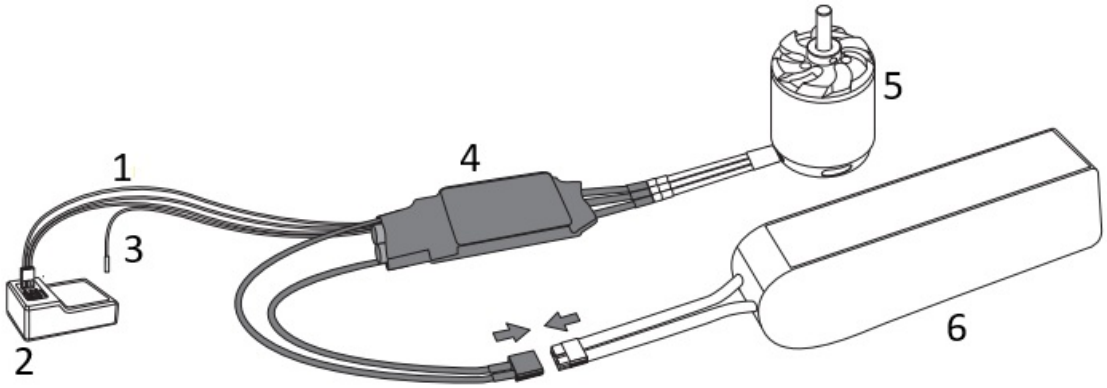
Specification

Type	PN#Model	Cont./Burst Current(A)	Battery cell Lipo/ LiHV	Weight (g)	BEC	Size(mm)	User Program
XQ+ 25	#15922	25A/35A	2-4S Lipo/ LiHV	36	5V/6V/7.4V 4A	68*26*10	Yes
XQ+ 35	#15923	35A/45A	2-4S Lipo/ LiHV	39	5V/6V/7.4V 4A	68*26*10	Yes
XQ+ 45	#15924	45A/55A	2-6S Lipo/ LiHV	43	5V/6V/7.4V 4A	73*26*10	Yes
XQ+ 65	#15925	65A/75A	3-6S Lipo/ LiHV	65	6V/7.4V/8.4V 8A	60*36*20	Yes
XQ+ 85	#15926	85A/95A	3-8S Lipo/ LiHV	110	6V/7.4V/8.4V 8A	88*38*24	Yes
XQ+ 105	#15927	105A/115A	3-8S Lipo/ LiHV	110	6V/7.4V/8.4V 8A	88*38*24	Yes
XQ+ 125	#15928	125A/135A	3-8S Lipo/ LiHV	112	6V/7.4V/8.4V 8A	88*38*24	Yes
XQ+ 130 HV	#15929	130A/150A	6-14S Lipo/LiHV	200	NONE	80*45*45	Yes
XQ+ 160 HV	#15930	160A/180A	6-14S Lipo/LiHV	200	NONE	80*45*45	Yes

Wires Connection

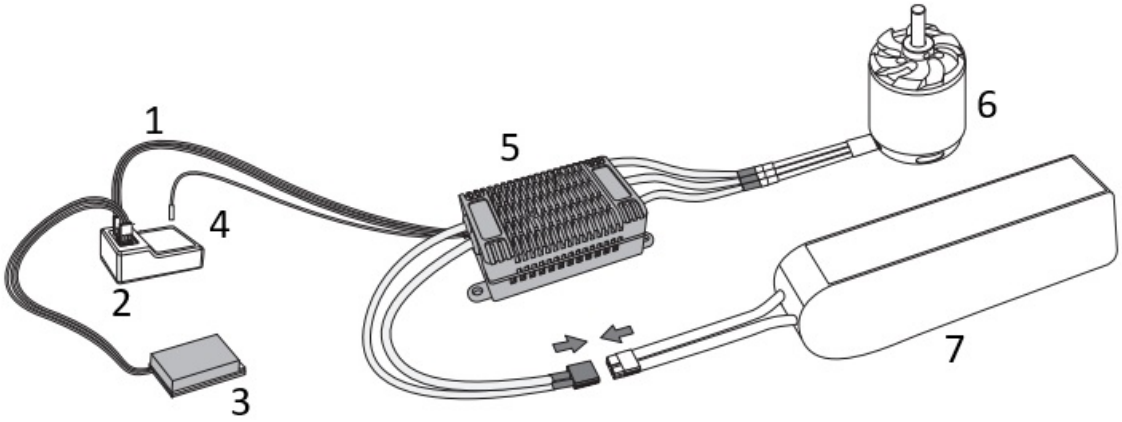
The speed controller can be connected to the motor by soldering directly or with high quality connectors. Always use new connectors, which should be soldered carefully to the cables and insulated with heat shrink tube. The maximum length of the battery pack wires shall be within 6 inches.

- 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.



1. THROTTLE SIGNAL WIRE
2. RECEIVER
3. REVERSE SIGNAL WIRE
4. ESC
5. MOTOR
6. BATTERY

OPTO ESC Connection(130A/160A G2



1. THROTTLE SIGNAL WIRE
2. RECEIVER
3. UBEC
4. REVERSE SIGNAL WIRE
5. ESC
6. MOTOR
7. BATTERY

Throttle Calibration

Turn on your transmitter and when fully initiated, move the throttle stick to the highest position (ensure throttle trim is neutral first).

⇓

Connect your flight battery to the ESC and wait for about 2 seconds.

⇓

The motor will make two short beeps, lower the throttle stick to the lowest position as soon as you hear these two beeps.

⇓

Motor will now beep a number of times (one beep for every cell in your flight battery) followed by a longer “Beep ——Beep”.

⇓

This indicates that the throttle for your ESC is now calibrated and ready to use.

Normal Startup Procedure

Turn on the transmitter, move the throttle stick to the boom position.

⇓

Connect the battery pack to the ESC and wait for about 2 seconds.

⇓

When the motor emits “Beep—-Beep”, means self-test is finished, the ESC is ready to work.

⇓

The motor will beep several sounds, sounds me presents the amount of battery cells.

Programming Items(The option written in bold font is the default setting)

1. SMR Function: OFF/ON
   This function supports switching the motor rotation to decelerate when the airplane landing to the ground.
   The factory default is OFF, the 1Pin signal wire is completely invalid at this time.
   If you need to turn it on, using Phone App or LCD programming card to program it “ON”, plug the 3Pin signal wire into the throttle channel, and plug the 1Pin signal wire into any 2-stage switch channel of the receiver, then turn on the transmitter 2-stage switch. The RVS function is turned on now, you can change the forward and reverse directions of the motor by flipping the 2-stage switch of the transmitter.
   ⚠ Warning: This function can only be effective when the throttle is below 50%, and it is only allowed to be used when the airplane is landing on the ground, otherwise it may cause the ESC to burn!
2. Brake Type: OFF/Soft/Mid/Hard
3. Timing: Auto/5°/10°/15°/20°/25°/30°
4. Motor Rotation: CW/CCW
5. SR function: ON/OFF
   The synchronous rectification function makes ESC with higher driving efficiency and more energy-saving.
6. Battery cells: Auto/Set this item manually
   Auto: When the “Auto” is selected, the ESC will automatically calculate the number of Lipo cells as per 3.8V/Cell.
7. Low Voltage Cutoff Threshold: OFF/2.3V/2.5V/3.0V/3.2V/3.4V/3.6V
   For example: using 4 lithium batteries and setting 3.0V as the low voltage cutoff value, then the low voltage protection threshold is: 4*3.0 = 12.0V
8. Low Voltage Cutoff Type: Reduce Power/Cut Off Power
   Reduced power: When the voltage drops to the set low-voltage protection threshold, the ESC will reduce power to 70%.
   Cut Off Power: When the voltage drops to the set low-voltage protection threshold, the ESC will cut off the power immediately.
9. BEC: 6.0V/7.4V/8.4V
   BEC of the 25A, 35A, 45A ESCs is 5V, 6V, 7.4V, the HV variants have no built-in BEC.
10. Acceleration: Normal/Soft
    Please ensure to select the “Soft” acceleration when using EDF jet airplanes.
11. Start-up Power: Low/Mid/High

Protection Function

1. Start-up protection: If the motor fails to start normally within 2 seconds after pushing the throttle to start, the ESC will cut off the output power, and you need to make the throttle calibration again, then ESC can be restarted. Possible reasons: disconnection or poor connection between ESC and motor, the propeller or motor is blocked by other objects, the gearbox is damaged, etc.)
2. Over-heat protection: When the temperature of the ESC is over about 110, the ESC will automatically reduce

the output power for protection, but will not fully shut down the power, reduce it to 70% of the full power at most to ensure the motor has enough power to avoid crashes.

3. Throttle signal loss protection: The ESC will reduce the output power if throttle signal is lost for 1 second, will cut off output to the motor if the throttle signal is lost over 2 seconds. If the throttle signal recovers during power down, the ESC will immediately resume throttle control. In this way, the ESC will not protect when the signal loss less than 2 seconds, only when the signal lost is over 2 seconds or longer me. And the ESC will reduce the output power gradually instead of cutting off it immediately, so the player has certain amount of me to save the plane, taking into account safety and practicality.
4. Over load protection: The ESC will cut off power or restart automatically when the load increased a lot suddenly, possible reason is the motor blocked.
5. Over-current protection: When the peak current exceeds the specified value, the ESC will immediately cut off the output power, and then restart to restore the power. If the current exceeds the specified value again, the output power will be completely cut off. Possible reason is overload, burnt motor or some others.

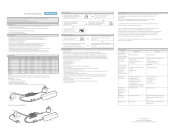
Trouble Shooting

Trouble	Possible Reason	Action
After powering up, ESC emits the sound of battery cells, but motor can't run.	ESC doesn't set throttle range.	Set throttle range again.
After powering up, motor does n't run and doesn't emit any s ound.	1.Bad connection betwe en ESC and battery. 2.Bad soldering cause b ad contact. 3.Low voltage of the bat tery. 4.Quality problem of ES C.	1.Clean the connectors or replace them, check the c onnection polarity. 2.Solder the wires again. 3.Check battery pack, use full-charged battery. 4.Change ESC.
Motor does n't work and no au dible tone emitted after conne cting the battery. Servos are n ot working either.	1. Poor/loose Connectio n between battery Pack and ESC. 2. No power 3. Poor soldered connections 4. Wrong battery cable polarity 5. ESC throttle cable co nnected to receiver in th e reverse polarity	Check all the connections make sure you are doing i t right.
Motor does not work but servo s do.	1. Poor / loose connecti on between ESC and m otor 2. Burnt motor coils 3. The battery pack volt age exceeds the accept able range. 4. Throttle stick is not at the lowest position 5. The ESC throttle calibrat ion has not set up	1. Check all the connections make sure you are doin g it right. 2. Change a new motor. 3. Solder the wires again. 4. Check the battery pack, use full-charged battery. 5. Set throttle range again.
When the ESC is powered on, the motor does not work and a n alarm sound (continuously b eeping) will sound	The throttle stick is not i n the bottom position aft er power on.	Move the throttle stick to the bottom position.
Motor runs in reverse rotation	Wrong cables polarity b etween the ESC and the motor.	Swap any two of the three cable connections betwee n the ESC and the Motor or access the Motor Rotati on function via the ESC programming mode and cha nge the pre-set parameters.
Motor stops running in flight.	Lost throttle signal	Check proper operation of the radio equipment. Che ck the placement of the ESC and the Receiver and c heck the route of the receiver's aerial and ESC

Shenzhen ZTW Model Science & Technology Co., Ltd
ADD: 2/F, Block 1, GuanFeng Industrial Park, Jiuwei, Xixiang, Baoan, Shenzhen, China, 518126
TEL: +86 755 29120026, 29120036, 29120056 FAX: +86 755 29120016 WEBSITE: www.ztwoem.com EMAIL: support@ztwoem.com

Lauterbachstrasse 19, 84307 Eggenfelden, DE
Tel: +49 8721- 50 82 66 0 | email: mail@pichler.de | www.pichler.de

Documents / Resources

	PICHLER XQ Plus Brushless Speed Controller [pdf] Instruction Manual XQ Plus Brushless Speed Controller, XQ Plus, Brushless Speed Controller, Speed Controller

References

- Pichler Modellbau
- Home - ZTW Official Store
- User Manual