



Purple Power Electronic Speed Controller Users Manual

Part Number	Continuous Current	BEC	LiPo	Ni-Cd/Ni-MH
PP-TESC12AU	12A	2A	2-3 Cell	6-10 Cell
PP-TESC20AU	20A	2A	2-3 Cell	6-10 Cell
PP-TESC25AU	25A	2A	2-3 Cell	6-10 Cell
PP-TESC30AU	30A	2A	2-3 Cell	6-10 Cell
PP-TESC40AU	40A	5.5V - 5A	2-6 Cell	6-10 Cell
PP-TESC60AU	60A	3A	2-3 Cell	6-10 Cell
PP-TESC70AU	70A	OPTO	2-6 Cell	6-16 Cell
PP-TESC100AU	100A	6V - 5A	2-6 Cell	6-16 Cell

Features

- Easy setting, easy operation.
- Safe start-up system. The motor will start no matter which position the throttle stick is when the battery is connected.
- Automatic power cut-off. If the motor suddenly stops rotating or the radio signal is lost for more than 3 seconds, the power will automatically be cut off.
- BEC provides power to receiver and servos (for ESC with BEC).
- High rate switching Pulse Width Modulation (PWM): 8KHZ.
- Over-heat protection. The power will be cut-off as it is heated up to 110°C.
- Over-voltage protection. The motor will not start if the voltage is higher than 18V (Expect for the OPTO series.)
- Low-voltage cut-off. 3.0V/2.7V (selectable) for Li-ion/Li-polymer battery; or 0.9V/0.7V (selectable) for Ni-CD/Ni-MH battery.
- Timing mode; Timing low mode--- providing highest efficiency suitable for motors with 2, 4, 6 poles; Timing high mode---providing highest speed & is suitable for motors with 6 or more poles and outrunner motors.
- Programming is very easy with the programming card.

Factory default settings

- Brake off.
- Timing: high; for outrunner motors and motors with more than 6 poles.
- Throttle curve: linear.
- Battery type: Li-ion/Li-Polymer battery.
- Cut-off voltage: cut-off voltage low. (2.7V for Li-xx battery).
- Cut-off type: cut-off soft, reduces the power when the voltage drops to the cut-off voltage.

Programming by transmitter

A: Normal Start-Up

1. Switch on the transmitter.
2. Move the throttle stick to the lowest position.
3. Connect the main power pack to ESC (For ESC without BEC, switch on the power to receiver first.)
4. 1 "single beeps" (Brake is on) or 2 "single beeps" (Brake is off) will be heard.
5. (Note: If you do not hear "beeps", please disconnect the battery from the ESC and wait for 5 seconds and repeat the connection.)
6. 5 seconds later, 5 "single beeps" (Timing low mode) or 5 "double beeps" (Timing high mode) will be heard.
7. The ESC is now ready for flight.

B: Programming and Start-Up

1. Setting the Brake: (Note: Factory Default Setting: Brake Off)
2. How to change the Brake
3. Switch "on" the transmitter and move the stick to "full throttle" (highest position)
4. Connect the main power pack to ESC (For ESC without BEC, switch on the power to receiver)
5. Wait 5 seconds, you will hear 4 beeps
6. Move the throttle stick to the lowest position.
7. After moving you will hear 1 "beeps" that means the brake is on; or 2 "beeps" that means the brake is off; Now the brake setting is saved
8. You will then hear 5 "double beeps" (Timing high) or 5 "single beeps" (Timing low), that means the ESC is ready for flight.

Note: If you want to change the brake again or set timing mode, disconnect the motor battery pack and then repeat the procedure.

Setting the timing mode

The factory default setting is high.

- Switch "on" the transmitter and move the stick to "full throttle" (highest position);
- Connect the main power pack to ESC (For ESC without BEC, switch on the power to receiver);
- Wait 5 seconds, you will hear 4 beep
- Wait 5 seconds, you will hear 5 "Single Beeps" or 5 "double Beeps"
- Swiftly move the throttle stick to position "close" (lowest position);
- The brake setting has now been saved.
- 1 "single beep" indicates that the brake is on, 2 "single beeps" indicates the brake is off; 5 "double beeps" (Timing high) or 5 "single beeps" (Timing low), now the ESC is ready for flight.

Note: If you want to change the timing mode again or set brake mode, disconnect the motor battery pack and then repeat the procedure.

Programming using the Prog-Card

- Connect the motor to the ESC and connect the ESC to the receiver.
- Place the six black jumpers to the required positions on the programming card.
- Plug servo type connector into the "controller" on the Prog Card.
- Connect the ESC to your battery
- For ESC's with BEC, one "beep" will be heard which indicates your settings have been saved.
- For ESC without BEC, one "beep" will be heard after, connecting the 4.8V(receiver pack) to the position "external power for OPTO".
- Disconnect the battery from the ESC.
- Disconnect the Prog-Card.
- Plug JR connector (part of ESC) to the receiver-motor control channel.
- Switch on the transmitter.
- Put the throttle stick at the lowest position.
- Connect the power pack to the ESC. (For ESC without BEC, switch on the power to the receiver.)
- 1 "single beep" (Brake is on) or 2 "single beeps" (Brake is off) will be heard. (Note: If you do not hear "beeps", please disconnect the battery & ESC. Wait for 5 seconds and repeat the connection.)
- 5 seconds later, 5 "single beeps" Indicates the timing is set to Low or 5 "double beeps" indicates the times is set to high (good for outrunners).
- The ESC is now ready for flight.

Option parameters on the Prog-Card

- Battery Type:
 - ACCU Ni-XX (NICD or NIMH)
 - ACCU Li-XX (Li-Pol or Li-Ion)
- Brake Mode: On / Off
- Cut-Off voltage: High / Low
 - High—0.9V for Ni-CD & Ni-MH; 3.0V for Li-ion/Li-polymer.
 - Low—0.7V for Ni-CD & Ni-MH; 2.7V for Li-ion/Li-polymer.
- Timing Mode: High / Low
 - High (hard timing)--recommended for outrunner motors.
 - Low (soft timing)--maximum efficiency for normal motors (2, 4, 6 pole motors).
- Cut-Off Mode: Hard / Slow down
 - Hard—the motor is fully off immediately as the voltage drops to the cut-off voltage.
 - Slow down—the motor turns off slowly by power reduction (when the voltage drops).
- Throttle Curve: Linear / Logarithm
 - Linear---soft throttle curve. When the throttle at the mid-position, RPM=60% of Max RPM. (Be suitable for F3A, 3D models, etc.)
 - Logarithm----sensible throttle curve. When the throttle at the mid-position, RPM=80% of Max RPM. (suitable for gliders)