ORCA®
RUNplus

Dual System
Brushless / brushed

INSTRUCTION MANUAL
VERSION 1.03

Thank you for choosing ORCA Products. Welcome to join our dual system convenience of power RC. By purchasing the Run-plus Electronic Speed Control ("ESC") you have chosen one of the most advanced speed controls in RC. The Run-plus allow to use brushless or brushed motor to driver, The esc attach the LED program card let you easy to change the setup of ESC, The first of ORCA speedo have Dual system function. Please read this manual thoroughly to familiarize yourself with the installation, setup and operation. By operating this product, you accept the ORCA Warranty Terms.

SPECIFICATION

*******Dual System*******
Brushless(sensor with turbo) or Brushed

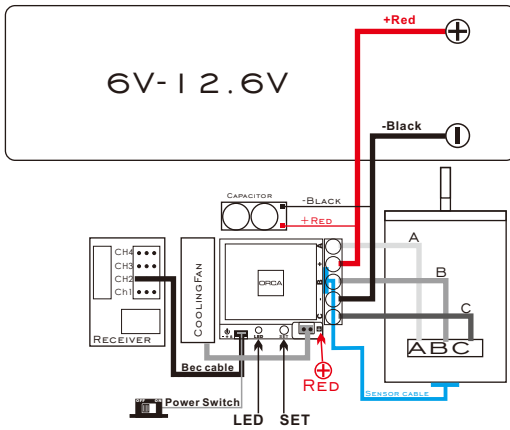|	
System:	Dual Brushless or Brushed System
Forward/Brake/Reverse:	Yes (Factory preset at Forward/Brake)
Dimensions:	29.5(L) x 29.7(W) x17.6mm(H)
Weight:	22g (excluding wires)
Voltage Input:	6V-12.6V (Lipo 2~3Cells)
Peak Current:	310A
Continuous current :	80A
Motor Limit:	Over 10.5Turns
Motor Type:	Sensored 540 sized brushless motors or Brushed motor
B.E.C.:	4A_6V
Multi Protection System:	Yes

OPERATION

* Install/Solder the relevant battery connector (Battery Specific) to the battery wires.Red to +ve and Black to -ve. (*WARNING!* Reversing the battery polarity will destroy your ESC and void the warranty.)
* Connect supplied BEC wire(200mm) to 3pin port match the (- + s) between the receiver connector and ESC.
* Connect the 3 motor wires(Brushless motor) or 2 motor wire(Brushed Motor) to the motor. The connector suggest use the ESC connected plug. Match the label of the ESC Output (A, B, C) to the Tablabels on the motor when soldering. Avoid soldering each joint for longer than 5 seconds. Prior to operation make sure you have not created a short by either creating a wire bridge or solder bridge on the solder tabs on the motor. (*WARNING*! Improper wiring may damage the ESC and void the warranty.)
* Connect the sensor cable between the ESC sensor plug and the Motor sensor plug.(
* Connect the receiver plug to the CH2/throttle pin of the receiver.
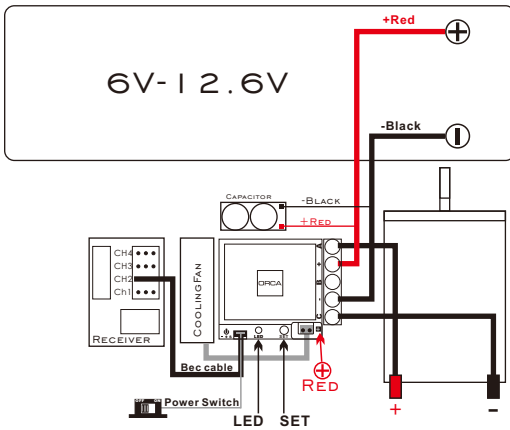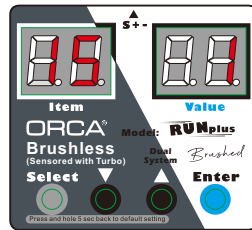
RADIO & ESC SETUP

Transmitter Settings:
Throttle Travel Maximum / 100%
Brake Travel Maximum / 100%
Throttle Exponential Start with 0%
Throttle Neutral Trim Center / 0
Throttle Servo Reverse Reverse (Futaba, KO, Sanwa)
Initial set-up of the throttle end-points of the ESC:
 * Connect the power wires of the ESC to a fully charged battery set; making sure the polarity is correct.
 * Bind your receiver and transmitter first if your radio requires you to do so.
 * Turn on the transmitter and hold the throttle at full brake position.
 * Turn on ESC and listen for 2 beeps.
 * After you hear the 2 beeps, apply full throttle and listen for another 2 beeps.
 * Once you hear the 2 beeps, release the throttle to neutral position.
 * A beep will then sound, signifying that the ESC endpoints have been successfully set.
Note! If you do not hear the beeping sound as described above, try reversing the throttle reverse setting in the transmitter.

INSTALLATION & CONNECTORS

6V-12.6V

+Red

-Black

CAPACITOR
-BLACK
+RED

CH4
CH3
CH2
CH1

COOLINGFAN

RECEIVER

ORCA

A
B
C
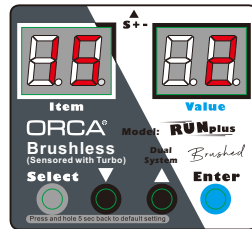ABC

Bec cable

RED

SENSOR CABLE

Power Switch
LED   SET

Brushless System

WARNING!
1.) Motor A+B-C must match the ESC Initial Setup.
2.) Item and Value program setup must be match the motor type.
(Otherwise will damage the ESC.)

Item   Value

ORCA® Brushless (Sensored with Turbo)   Model: RUNplus   Dual System   Brushed
Select ▼ ▲ Enter
Press and hole 5 sec back to default setting

6V-12.6V

+Red

-Black

CAPACITOR
-BLACK
+RED

CH4
CH3
CH2
CH1

COOLINGFAN

RECEIVER

ORCA

Bec cable

RED

Power Switch
LED   SET

+   −

Brushed System

WARNING!
1.) Motor +/- polar must match the ESC Initial Setup, otherwise the motor rotation will reverse.
2.) Item and Value program setup must be match the motor type.
(Otherwise will not work of the ESC.)

Item   Value

ORCA® Brushless (Sensored with Turbo)   Model: RUNplus   Dual System   Brushed
Select ▼ ▲ Enter
Press and hole 5 sec back to default setting

Detailed Explanation of each Function Menu items

1) Running Mode
Froward/Brake-------This function the car will not have reverse function, Just forward and brake.
Forward/Rev--------- This function the car will reverse immediately when the throttle brake the car.
Froward/Brk/Rev--- Set this function the first touch of throttle brake the car will have brake function, and if you release to center position after brake and continue brake again the reverse function will appear.

2) Battery Type
Lipo, Li-Fe or Nixx select.

3.) Battery Cut-Off Voltage

Lipo --- Low ------ cut off at 2.9V/cell	Li-Fe — Low ------ cut off at 2.2V/cell	Nixx — Low
Middle -- cut off at 3.2V/cell	Middle--- cut off at 2.5V/cell	Middle — cut off at 4.0V/ total
High ----- cut off at 3.4V/cell	High ------ cut off at 2.8V/cell	High
Disable - No cut off protect	Disable - No cut off protect	Disable - No cut off protect

4) Initial start force
Usually the throttle force starts from 1% to 100%; it can let you get the best linear control feeling. This function can let you get a more aggressive feeling in the throttle. You can choose the throttle start point at 5%, 10%, 15%, 20%, 25%, 30% or 35% to 100%. This function comment is used in brushed motors, because the power of brushed motors is typically weak than brushless motors.

5) Punch
Allows you to change the punch of the ESC (Level 1 to Level 5). Level 1 has the most miniature punch and Level 5 has the highest punch. Adjust punch level to maximize acceleration speed with minimum wheel spin.

6) PWM(Driver Freq)
Allows you to change the forward drive frequency of the ESC ("2K to 24K From six-step)
* The 2K setup will give you good punch at the low end.
* The 24K setup will result in strong mid to top end.
* Experiment to find out what suits your driving style best.

7) Timing
Allows you to adjust the timing of the motor (0º-100º Mode 1º increments): Generally speaking, in brushless systems, an increase in timing will result in an increase in the RPM of the motor. However, an increase in timing also will decrease the efficiency of the system, thus generates heat on the ESC and motor.

8.) Turbo Timing
Turbo Timing is unique to brushless systems because the ESC can simulate motor timing advance. While mechanical timing advance in a brushed motor system is limited by the physical phasing of the motor, brushless ESC timing advance can push beyond that physical limit. As a result, motors can run at a super-high RPM in the Turbo Timing mode, resulting in a sensation of having a 2nd gear/Turbo for top speed. This menu allows you to adjust the amount of Turbo Timing in your rake ESC in 1º increments. (The "Turbo Timing" should never be greater in value than Timing)

9) Motor rotation
CCW — Motor clockwise rotation, fit for over 90% car kit.
CW — Motor anti-colckwise rotation, fit for some special car kit.

10) Drag Brake
Set the automatic brake force applied when the throttle returns to neutral position (8 steps from Off to 100%):
* 60%, 80% and 100% Drag Brake recommend used in Crawl only.

11) Max Reverse Force
Control the Maximum Reverse power when you Reverse the car.

12) Brake Punch
When you set Punch 6, the brake time will follow your throttle brake simple and direct, if you used Punch 1-5 the brake feeling have something ABS, get more smooth.

13) Brake PWM(Brake Freq)
Brake PWM operates similar to PWM except it affects the braking instead of the throttle (4 steps from 600hz to 4khz)
* At 600 Hz, the Drag brake and the Brake force will feel the punchiest.
* At 4k Hz, the Drag brake and the Brake will feel smooth.

14) Neutral Range
Set the sensitive relay to your throttle feeling, preset in 9%.

15) Motor Type
This is a special function of the "RUN PLUS" ESC, it can let you choose two different type of motor, Brushless motor or Brushed motor, but please carefully to select the "Value" of "Item" 15, because Improper configuration may damage the ESC.

Setting by LED Program Card

Item	Value	01	02	03	04	05	06	07	08
RunningMode		Forward/brake/Rev	Forward/Brake	Forward/Rev					
Battery Type		Lipo	Li-Fe	Nixx					
Battery Cut-Off Voltage		Low	Middle	High	Disabled				
Initial Start Force		1%	5%	10%	15%	20%	25%	30%	35%
Punch		Level1	Level2	Level3	Level4	Level5			
PWM		2K	4K	8K	12K	16K	24K		
Timing		OFF	10°	20°	30°	40°	These two-function work with a brushless motor only		
Turbo Timing		OFF	10°	20°	30°	40°	50°	60°	
Motor rotation		CCW	CW						
Drag Brake		OFF	5%	10%	20%	40%	60%	80%	100%
Max Reverse Force		25%	50%	75%	100%				
Brake Punch		Level1	Level2	Level3	Level4	Level5	Level6		
Brake PWM		600Hz	1K	2K	4K				
Neutral Range		3%	6%	9%	12%	15%			
Motor Type		Brushless	Brushed						

Setting without Program Card

Item	Value	Blue light Flash one time	Blue light Flash two times	Blue light Flash three times	Blue light Flash four times	Blue light Flash five times	Blue light Flash six times	Blue light Flash seven times	Blue light Flash eight times
RunningMode	Red light flash one time	Forward/brake/Rev	Forward/Brake	Forward/Rev					
Battery Type	Red light flash two times	Lipo	Li-Fe	Nixx					
Battery Cut-Off Voltage	Red light flash three times	Low	Middle	High	Disabled				
Initial Start Force	Red light flash four times	1%	5%	10%	15%	20%	25%	30%	35%
Punch	Red light flash five times	Level1	Level2	Level3	Level4	Level5			
PWM	Red light flash Six times	2K	4K	8K	12K	16K	24K		
Timing	Red light flash Seven times	OFF	10°	20°	30°	40°	These two-function work with a brushless motor only		
Turbo Timing	Red light flash Eight times	OFF	10°	20°	30°	40°	50°	60°	
Motor rotation	Red light flash Nine times	CCW	CW						
Drag Brake	Red light flash Ten times	OFF	5%	10%	20%	40%	60%	80%	100%
Max Reverse Force	Red light flash Eleven times	25%	50%	75%	100%				
Brake Punch	Red light flash Twelve times	Level1	Level2	Level3	Level4	Level5	Level6		
Brake PWM	Red light flash Thirteen times	600Hz	1K	2K	4K				
Neutral Range	Red light flash Fourteen times	3%	6%	9%	12%	15%			
Motor Type	Red light flash fifteen times	Brushless	Brushed						

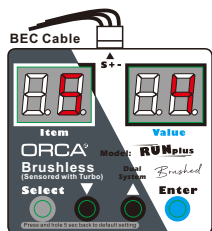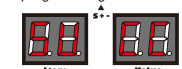## How to used the LED Program Card to setup the ESC.
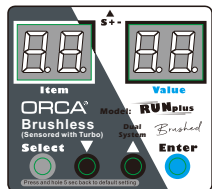
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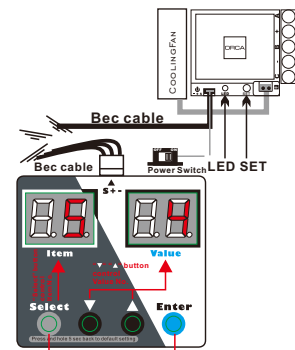
For example: Now set the Punch to Level4
1) Plug "BEC" cable to the program card.
2) Esc connect the battery and then turn it on.
3) Press the "Select" button one by one until the "Item" no. up to "5".
4) Press the "▲" button one by one until the "Value" no. up to "4".
5) Press the "Enter" button and then, the card will show " SE" and "nd", now; all data are ready to send but not successful.
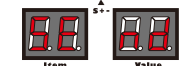
6) Press the "Enter" button again, and then the card will show "SU" and "CC", now the programming are succeeful.

Refer to here

Bec cable
BEC Cable
Bec cable
Power Switch LED SET

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Press and hole 5 sec back to default setting.
Double-press the "Enter" button will succeed in your programming.

How to used the button to setup the ESC without program card:
(Transmitter must be turn on during setup the esc without program card.)

1. Connect the power wires of the ESC to a fully charged battery set; making sure the polarity is correct.

2. Used the 1.5mm screw to press the set hole button before switch on the esc, switch on esc and then hold the button contiue about 2 second to wait the LED light off and hear the motor long beep sound appear.

3. Set hole button only to let you choice the function mode, red LED will flash one time to eleven time represent which function you want to set.

4. Transimitter will let you change the participate of each function,
   full throttle once time will increase one participate e.g. (the blue LED will flash two time from one time).
   full brake once time will decrease one participate e.g. (the blue LED will flash one time from two time).

5. When you finish setup you can switch off the esc directly, it can save automatically.

Esc back to default setup:
Used the 1.5mm screw to press the set hole button before switch on the esc, switch on the esc and then hold the button contiue about 3 second to wait the LED light change to orange color and hear the motor long beep sound and then keep continue press the set button until the LED change from orange color to red and blue led light fast flash.
Release the set button and switch off the esc.