

Tamiya TBLE-04S esc speed controller Review and Guide

RCRacerMan 4 15:44



There is a new release from Tamiya that is one of the most important. The kit included ESC has been upgraded from the TBLE-02S to the New TBLE-04S. This is a guide on how to use it, and also a small review to see how it runs, and will it offer anything more than its successor..

Specifications

This ESC is designed for use with Brushless Motors (Sensored), and also brushed motors 25T and over. High point, neutral brake and brake settings are individually adjustable, while battery cut-off, reverse and motor modes can be selected. Setup is shown by an LED, and the ESC also features two protection functions.

Size

The TBLE-04S has only a marginally smaller footprint than its predecessor, coming in at 41.5 x 33.4mm. This shaves a minimal 0.5mm off the footprint. In the height department things are much different with the new ESC being very low profile at only 18mm, 7mm lower than the old unit.

Weight

- TBLE-02S = 51.8g
- TBLE-04S = 47g

A nice 5g weight saving.

Setting up.

The esc is able to be used on both brushed and brushless motors. Out of the box

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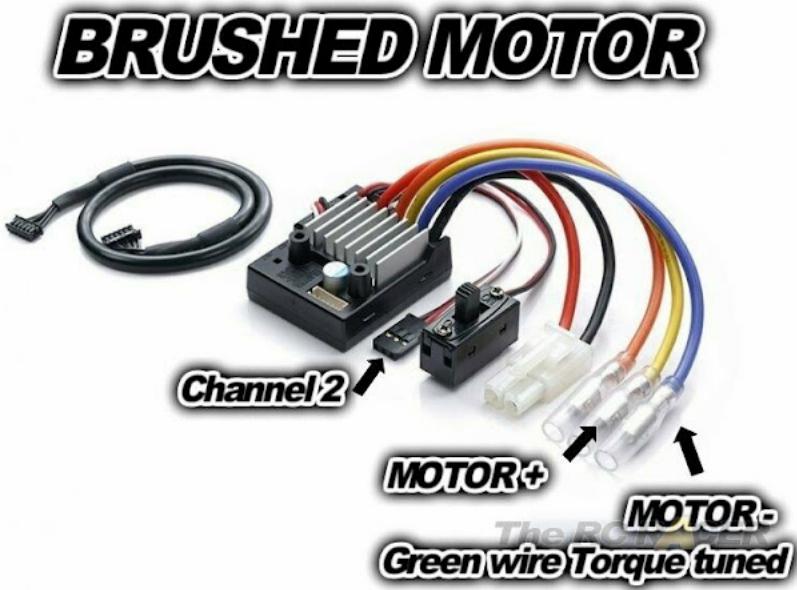
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the esc is in the default brushed motor configuration.

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Brushed motor installation



When installing the esc into your car, you will only use two of the three motor wires. As shown above the blue wire goes to the minus terminal on the brushed motor (This is usually a green wire on the Tamiya Torque Tuned motor that comes in the kit), and the yellow wire goes to the positive terminal on the motor. (This is usually yellow on the Tamiya Torque tuned motor).

Brushless motor installation



The Tamiya esc is able to be used on their own sensored motors. It also is able to work on many other makes of motor. I would suggest to limit the motor to 17.5 turns, although I do know of others that are successfully running 13.5motors with the esc. It must also be remembered that many top-spec race motors are much more powerful than the Tamiya motors so they may cause problems.

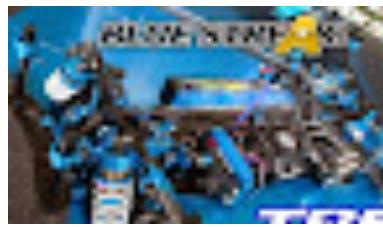
When wiring the brushless motor you need to plug in the sensor cable (Note any sensor cable will work). You then need to attach the wires to the three connectors on the brushless motor.

- Blue goes to Brushless motor connector A



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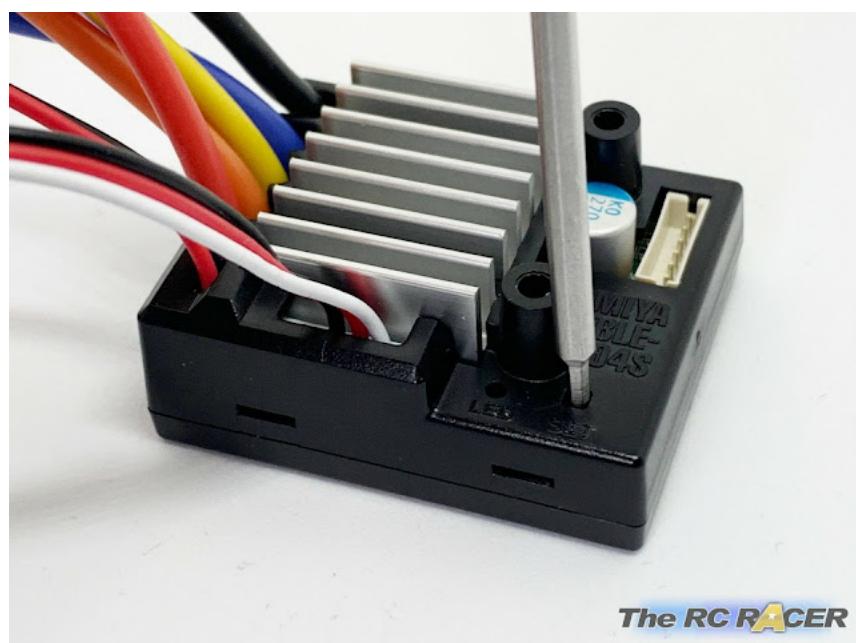
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- Yellow goes to Brushless motor connector B
- Orange goes to Brushless motor connector C

How to program

The esc is programable and most of the functions are programmed in the same fashion as the earlier TL02-S.



Everything is programmed via the set-button. The TBLE-04S button is easy to press. You just slide in a small hex driver (Or the kit included Allen key that is used for the pinion grub screw). Slide it in and just press down gently to press the button.



Once you press the set button the LED on the TBLE-04S will colour cycle through **RED**, **GREEN** and **ORANGE**. You just release the set-key when the LED is at the colour that shows the function you want to program.

Settings available

As you can see there are six functions that you can change. The top three you adjust by pressing the setting button when the esc is already switched on.

1: THROTTLE HIGH/LOW

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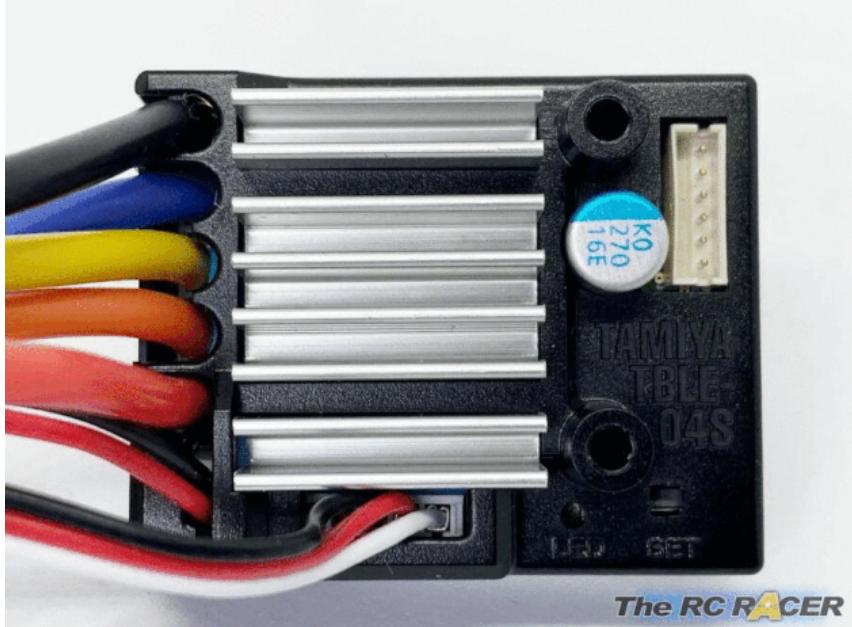


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OTHER THINGS



The TBLE-04S base throttle setting seems to work with most transmitters. However if you want to set it yourself. Just make sure the transmitter is switched on and you have any throttle expo etc removed. With the throttle at neutral, press the set button and release it when the LED is red. This will set the neutral instantly (**Flashing red LED**). Move the throttle stick (Trigger) to full throttle press the button again to set the highpoint (**Double flash Red**). Then move the stick (Trigger) to full brake and press the set button to set the brake point. (LED will switch off).

2: DRAG BRAKE SETTINGS



This mode is only available if you are running brushless motors. A drag brake will add resistance to the drive train when you release the throttle to neutral. This simulates the effect of brushed motors, but is much more tuneable. The default setting is 5% which is fine as a starting setting. I usually run 0% as I like to really only use brake to slow down the car, but it can be helpful on tight technical circuits.

To set this you press the setting button and release it when it's **GREEN**. It will then flash **GREEN**. Just count the amounts of flashes and that is the current setting. So if it flashes twice it will be at 5%. Three times 10% etc. To adjust it you just press the setting button to increment the value. It will loop back to setting one if you go

above ten.

3: BRAKE SETTINGS



This mode is only available if running brushless. This is simply the brake strength. The default is 100% and it really isn't worth changing this.

To set this you press the setting button and release it when it's **ORANGE**. It will then flash **ORANGE**. Just count the amounts of flashes and that is the current setting. So if it flashes twice it will be at 60%. Three times 65% etc. To adjust it you just press the setting button to increment the value. It will loop back to setting one if you go above ten.

These bottom three settings are selected by pressing the select button and then switching on the esc and choosing the right colour.

4: REVERSE ON/OFF



If you need to switch off the reverse for a race, then select Reverse on/off by releasing the set button when the **LED is RED**. This will allow you to toggle the Reverse setting. Releasing the button will automatically toggle the setting. So if the

reverse was on, it will automatically switch off. To switch it on, you just do the same process and it will toggle back to on.

5: BATTERY CUT-OFF LOW/HIGH



This is the most exciting update on the specification. The old TBLE02-S only has a life cut-off. The new TBLE-04S has a high cut-off. The value isn't given but I have tested it and it is 6.2V so it is LIPO Safe. (See the review below).

To toggle between these settings you need to release the set button when the **LED is GREEN**. This will allow you to toggle between the high and low setting. Releasing the button will automatically toggle the setting. So if the setting was LOW it will automatically switch to HIGH and vice versa.

6: MOTOR MODE



Here you can just swap between Brushed and Brushless motors.

To toggle between these settings you need to release the set button when the **LED is ORANGE**. This will allow you to toggle between Brushed and Brushless motor settings. Releasing the button will automatically toggle the setting. So if the setting was BRUSHED it will automatically switch to BRUSHLESS and vice versa.

ESC Status

Once switched on the ESC will show what settings it is currently in with a series of LED flashes and Beeps.

«LED Flashing Pattern»

Setup confirmation

When the receiver is switched on, LED will show the current settings by the color and flashing pattern to enable checking of Reverse, Battery Cut-Off and Motor Mode settings.

Motor Mode Setting	LED
Brushless Motor Mode	Orange
Brushed Motor Mode	Green

Reverse	Battery Cut-Off	LED	Beep tone
Enabled	Lo	Lights up Red →	Single flash
Disabled	Lo	Lights up Red →	Double flash
Enabled	Hi	Lights up Red →	Long single flash
Disabled	Hi	Lights up Red →	Long double flash

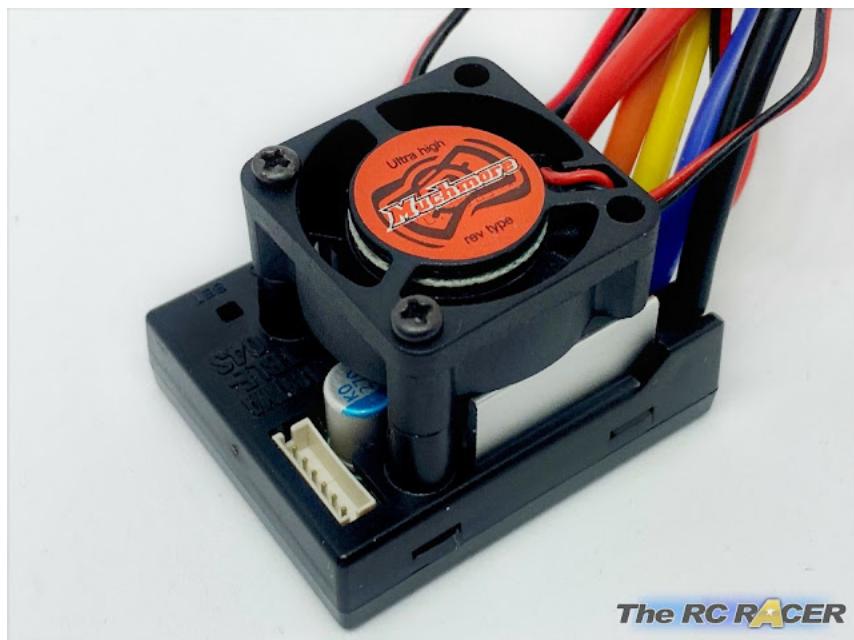
After showing the current settings, LED will go out and return to indicating throttle level. Refer to «Throttle Operation and LED Indicator» section.

A beep tone is emitted if a motor is connected.

The above shows the status. of the esc when it is running.

Cooling

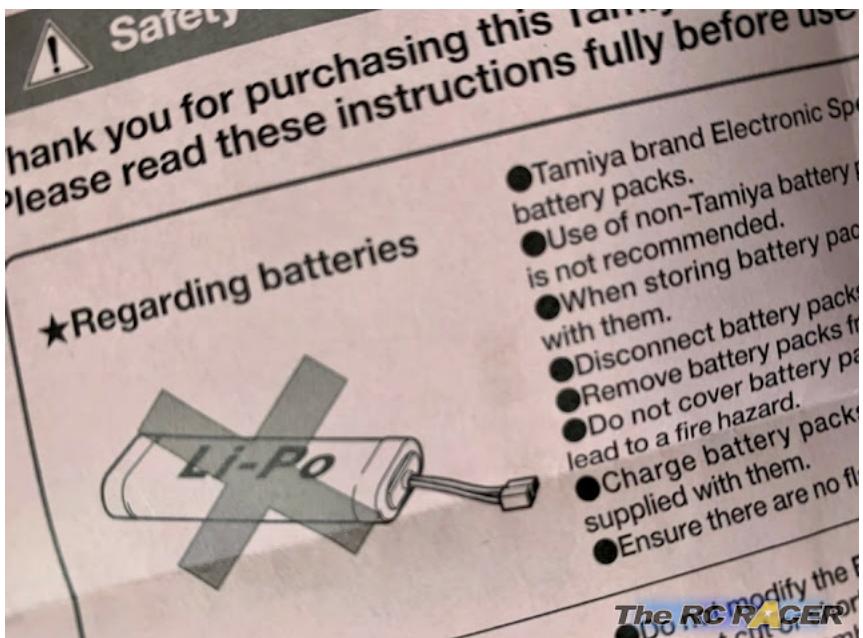
The new TBLE-04S has a larger surface area for the heat-sink to ensure that it will run at a cooler temperature.



It also comes with two mounts so you can fit a 25mm fan on top to increase the amount of cooling for the esc. I mounted an old Speed passion fan onto the TBLE-02S. You will need to power the fan via a receiver or attach it to the battery wires to power it. This is a nice addition to the TBLE-04S. 25mm fans are really cheap to buy and you do not need any special mounting hardware.

TRACK TEST

I was interested in seeing how the new TBLE-04S would feel compared to the previous esc, and I was also very keen to try out the high cut-off mode to see if it would work with a lipo.



The Tamiya literature that comes with the esc comes with a nice red sheet of 'Bad things' that you should not do with the esc, and the first thing it shows is that you should not use lipo batteries.. However this is because Tamiya does not officially support Lipo batteries, they want people to run the more safe LIFE batteries. As we do not use these in the west, I'm testing a LIPO and hoping that the new cut-off set to (High) will work.

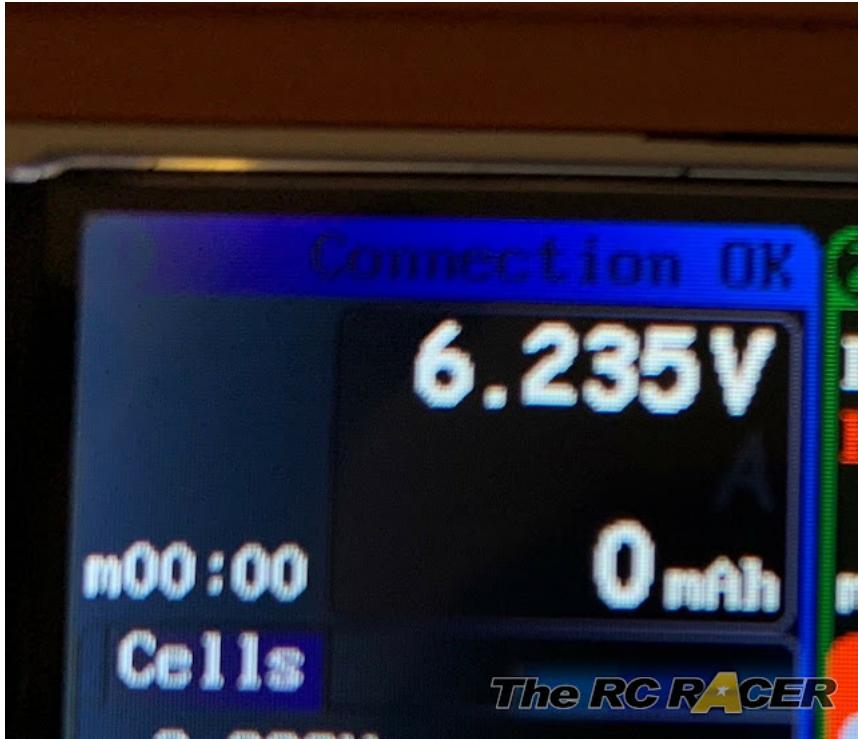
The ESC was placed in a std(ish) TT02, replacing the TBLE-02S that was already installed. The first thing I noticed was that the throttle response felt very smooth. I felt more in control with this esc and was able to exhibit more finesse with throttle inputs into the corner.

The brakes also felt more sharp. A lot of the issue with brakes when running a brushed motor is down to the actual motor itself. However like for like the brakes were stronger.

Combining the better throttle response and sharper brakes make the TT02 even more fun to drive. Sliding around in the dirty part of the carpark did feel more controlled and I had no problem spending the 40 or so minutes bashing around with the car waiting for the low voltage cut-off to kick in.

After a while the car slowed down thanks to the battery cut-off. I disconnected the battery and went home to see what voltage was remaining in the Lipo battery.

LIPO FRIENDLY?



RESULT! as you can see the High-Battery cut-off is set to 6.2v. This is great news. It looks to be safe to run this esc with a lipo if you set the cut-off to the HIGH value. From a racing perspective this will not make much of a difference as people will never run that low, but from a bashing perspective this will give you the confidence to run your car with a lipo.

WARNING - I have reviewed this and have shown the voltage that the lipo's ended up with. However Lipo batteries always need to be carefully monitored. Running any battery low will have a risk. You always do this at your own risk. Also I am not sure on how it monitors the value (per cell or overall). If that is the case then if a Lipo is badly balanced it could end up at 6.2v with one cell below 3V.

Next up I fixed a brushless motor to the esc. I attached a Muchmore Fleta V1 17.5 to the esc and ran that in the chassis. The TBLE-04 like the older TBLE-02S is even better when running brushless. The throttle response and brakes were all very good for a £20 esc. It's not going to replace my top-end race esc but there was zero cogging with the motor and the throttle range was really good. Again I ran the pack to cut-off and the final voltage was in the 6.2v range.

Set-up summary

Activation method	LED Colour / Function	Setting values YELLOW = Default								Brushed	Brushless	
Transmitter and receiver are already turned on. Release on the desired colour to select option.	High Point set-up	Throttle	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%
	Drag Brake set-up	Brake	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
	Brake Strength											
Switch on receiver while holding down the set button. Release on the desired colour to select option.	Reverse Set-UP	On	Off							Y	Y	
	Battery Cutoff	Low (LIFE / NiMH)	High 6.2V (LIPO)							Y	Y	
	Motor Mode	Brushed	Brushless							Y	Y	

Here is the overview on how to set-up the esc. The yellow colours show the default settings of the TBLE04S when you get one in your Tamiya kit.

Overall

The TBLE-04S is a great update to the std Tamiya Kit esc. It's easy to program, easy to cool with a std 25mm fan and it has a new cut-off setting that looks to make it safe to run lipos.

For a kit included esc its great, you do have to be mindful that it is not water-proof although I might try to rectify that in the future.

Alongside the better battery cut-off, it also feels more responsive and makes the driving experience more enjoyable, which is only a good thing. It also allows you to

easily move into the world of brushless motors when you want more speed and longer runtimes.

So a great update from Tamiya, and I look forward to pushing this esc more with a 13.5 and seeing if it can manage it.

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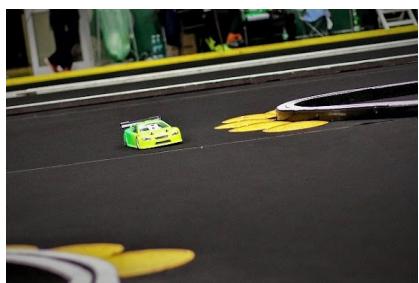
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Unknown 18/05/2021, 16:29

And it has a standard Tamiya power switch so it will fit in the typical power switch location on a Tamiya chassis???

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TeamTRF 18/05/2021, 16:55

Yes, it has a standard size Tamiya switch as seen in the photos. So it fits well in the TT02 etc.

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Row 21/06/2021, 17:09

Great article! Thanks!

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WLSchroder 26/07/2021, 03:57

Thanks for the details. Do you think there is any issue running a NiMH battery?

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