ELCERAM

User manual

for Electronic Speed Controller OXIDE 1/10



This is just a basic manual, for the full and extended version please visit: www.elceram-rc.com/download

1. Introduction

Thank you for purchasing OXIDE 1/10 and for your trust in ELCERAM product. By this decision, you have chosen a new generation electronic speed controller (ESC) for brushless motors developed especially for 1/10 RC cars, endowed with many unique features and functions.

Using the advanced technologies, OXIDE is a high-performance device requiring a professional approach. Improper usage and unauthorized modification to our product is extremely dangerous and may damage the product and related devices. We, ELCERAM, are not responsible for any damages occurred by unprofessional or unsuitable way of using our product.

We have the right to modify our product design, appearance, features and usage requirements without notification.

Please, take your time and read the following instructions carefully before you start using your ESC!

2. Warning and safety

- Read through the manuals of all power devices and chassis and ensure the power configuration is rational before using this unit.
- Please use a soldering iron with the power of at least 60W to solder all wires and connectors
- The device has to be disconnected from battery if not used!
- It is the high-power electronic device, please double check the polarity of battery interconnection! We are not responsible for a product damage caused by the incorrect connection to the battery.
- It is professional top level racing product and it is extremely important to double check the setting before use!
- This product is not a toy and it is not intended for children. Users under 16 years should use this product only with the direct supervision of a responsible and knowledgeable adult. Keep this product away from the reach of small children.
- Do not touch the device Immediately after using, it can generate high temperatures. If the temperature of ESC is higher than 70°C, the buttons can be hot. Please, wait until it cools down to less than 60°C before you switch it off by button, or switch the ESC from the battery for switch off.
- Stop the usage immediately once the temperature of the ESC exceeds 130°C, as this may cause damage to both the ESC and motor. We recommend setting the "ESC Thermal Protection" to 130°C (this refers to the internal temperature of the ESC)
- Never leave the device unsupervised while it is switched on, in use or connected with a power source. If a defect occurs, it could cause a damage or fire of the product or the surroundings
- Never wrap your product in plastic film, metal foil or similar, if it is switched on.
- · Never allow this product to come in contact with water, oil, fuels or other electroconductive liquids.
- Never place this product near the source of fire or very high temperatures.
- Never switch the device off from the battery while pressing the throttle.
- We recommend to use OXIDE together only with the compatible devices listed the chapter 7. Usage OXIDE with other devices was not tested yet and we are not responsible for any disfunctions or damages caused by using OXIDE together with unauthorized devices.

3. ESC Installation

The best way how to install the ESC into your car is to stick it directly on the chassis of your car using the double-sided tape included in the package. For example tape type 3M 5915

If better cooling effect desired, you can stick the OXIDE on any thermal conductive plate (for example aluminium) in the car

before and after race immediately on the display.

Description of Possible Events follows:

4. Connections

! WARNING ! Please, double check the polarity of battery interconnection! Make sure, that positive (+) of ESC is connected to the positive (+) of battery. If polarity is reversed, the ESC will be damaged.



5. Main Screen Description and Basic control of ESC



To enter to the Main Settings press simultaneously for 2 seconds To enter to the General Settings hold simultaneously for 4 seconds.

Basic Description of ESC Using

The using of ESC is very simple and there is no other programming interface needed.

After short pressing of ON/OFF/ENTER button, the ESC will be switched on. If you press ON/OFF/ENTER for about 3 seconds the ESC will be switched off. The ESC can be switched off also by disconnecting from the battery.

I IMPORTANT I The three buttons are multifunctional. Above buttons, there is the help text about what will happen if you press the button. You can move in the loop around using left or right buttons. The text above the ENTER button is underlined sometimes. That means you have two possibilities depended on how long you press the button. For example: reset/next. Short press = reset, Long press = next.

6. RX Calibration

! WARNING ! Keep the sensor cable disconnected during the first power on until ESC is calibrated with your radio system, to avoid unexpected motor start!

! WARNING ! We recommend to use one of the radio control systems compatible with OXIDE - listed in chapter 7. The table will be extended during the time.

! WARNING ! If you have Futaba Radio system, please reverse throttle before first turn onl



For radio system calibration, choose the RX CALIBRATION in the blue menu (Setting 1) using the buttons. Press calibrate button and hold it for approx. 1s. Push full throttle, full brake and return to neutral. Then press the Ok button. The calibration is done.

7. Compatible Devices

We recommend to use OXIDE together only with the compatible devices listed below Usage OXIDE with other devices was not tested yet and we are not responsible for any disfunctions or damages caused by using OXIDE together with unauthorized devices.

Transmitters	Receivers	Motors	Displayer	Event Description and Recommendation			
Sanwa MT-17	Sanwa Rx 493-i	Hobbywing	- 100.010.	The FSC does not see the signal from your receiver- Ry. It can be displayed if you			
Sanwa MT-4	-4 Sanwa Rx 482 FH4 Trinity		no Bx signal	switched ESC on first before the Transmitter. Transmitter and Receiver not paire			
Sanwa MT-44	Sanwa Rx 492 FH5	LRP		Bind your radio system.			
Sanwa MT-5	Futaba Rx R304SB	Muchmore	concor coblo	Data from motor sensors are invalid- check your sensor cable			
Futaba T4PM Plus	Futaba R202GF-E	Yokomo	sensor cable	connection			
Flysky Noble Pro	Futaba R203GF-E	Konect	motor temp	Motor reached "motor limit" temperature- ESC starts to limit max. power			
	Flysky FGr4v2 micro	Dash	limit				
8. Zero timing / Blin	ky / Stock mode		motor temp OVER	Motor temperature exceeded "motor limit" + 5 $^{\circ}\text{C-}$ Motor power will be reduced to the minimum			
			ESC temp limit	ESC reached "ESC limit" temperature- ESC starts to limit max. power			
Switching to Zero Timin If all of these parameter	g Mode ers- Turbo Timing, Boost Tim	ing and Hall Angle in Blue menu	ESC temp OVER	ESC reached "ESC limit" + 5 °C- ESC power will be reduced to the minimum			
(Setting 1)- are set to 0, the ESC is switched to Zero Timing Mode. In this case, the			battery EMPTY	Battery was discharged below "voltage cutoff" level			
Inscription ZERO HIVIII	NG is blinking green on the r	hain screen.	low battery	Battery was discharged below "voltage warning" level			
Switching the Zero Timi	ing Mode Off ters - Turbo Timing Boost T	iming or Hall Angles are set to a	battery overload	Current flow was too high for your battery- reduce boost timing, use motor more turns, new battery			
different value than 0,	the Zero Timing mode is	switched off and the inscription	unexpected reset	Current flow was extremely high for your battery and subsequent voltage drop caused ESC reset			
ZERO HIMING disappe	ears from the display.		maintenance interval	At least one of your maintenance counters reached 100 %			
9. EVENTs description	on		MAINTENANCE INTERVAL	At least one of your maintenance counters reached 200 %			
ESC OXIDE has revolution	onary self-diagnostics and yo	ou can see the event notifications	check RX cable	Check Rx connector and cable. Verify Rx calibration.			

	INTERVAL	At least one of your maintenance counters reached 200 %			
ations	check RX cable	Check Rx connector and cable. Verify Rx calibration.			
	flash read error Some settings or history will fall back to default values. Flash memory me worn out. Try reset to factory settings.				
	flash write error	Some settings or history will not be saved. Flash memory may be worn out. Try reset to factory settings.			
	BEC voltage low	BEC voltage under 2V. Can be generated by servo in big crashes. Check insulation of Rx and servo cables for short circuit. Bad servo motor, replace servo.			

Setup sheet	Parameter	TC Car STOCK	TC Car STOCK	TC Car STOCK	2WD STOCK	2WD STOCK	4WD STOCK	4WD STOCK	Default value
Motor		carpet	asphait	carpet	carpet	carpet	carpet	carpet	
Rotor (mm)		13.5T	13.5T	17.5T	13.5T	17.5T	13.5T	17.5T	-
Motor Timing (°)		-	-	-	-	-	-	_	-
Active FAN		No	No	No	No	No	No	No	
Throttle	INU INU INU INU INU INU NO NO								
THEOTTIE		200011	linequency, i	nore current an	lough motor u	la more aggress	ine uniottic resp	l	
PWM: 8.0 kHz smooth start: off expo: 0 response: +0	PWM	1 kHz	2 kHz	1 kHz	1 kHz	1 kHz	1 kHz	1 kHz	8 kHz
throttle: 0% <profile <u="">edit brake></profile>	expo	0	0	0	0	0	0	0	0
Brake	Less PWM frequency, more brake torque, more aggressive brake response								
BRAKE	min	10 %	10 %	10 %	10 %	15 %	10 %	10 %	0
min: 8% max: 100%	max	125 %	125 %	150 %	125 %	125 %	100 %	100 %	100 %
PWM: 2.0 kHz parkB off	expo	0	0	0	0	+20	0	0	0
brake: -10%	dragB	off	off	off	off	off	off	off	off
<throttle <u="">edit reverse></throttle>	PWM	2 kHz	2 kHz	1,5 kHz	2 kHz	2 kHz	2 kHz	2 kHz	2 kHz
Boost Timing		1	vlore boost timi	ng, more power	in rpm range, l	less efficiency of	power system		
BOOST TIMING	rpm 0	-	-	-	-	-	-	-	15000
0 @ 15krpm	rpm 1	-	-	-	-	-	-	-	25000
0 @ 40krpm split: no split	rpm 2	-	-	-	-	-	-	-	40000
rpm: Ok boost: O	boost1	-	-	-	-	-	-	-	0
<reverse <u="">edit turbo></reverse>	boost2	-	-	-	-	-	-	-	0
Turbo Timing			More turbo val	ue, more Top sj	oeed. More Rar	np up = faster tu	irbo increase		
TURBO TIMING	turbo	-	-	-	-	-	-	-	0
turbo 28 delav 0.02 s	delay	-	-	-	-	-	-	-	0.2 s
rampup 400/s down 500/s	ramp up	-	-	-	-	-	-	-	100 / s
turbo: 0	ramp down	-	-	-	-	-	-	-	100 / s
Hall Angle		nglo - SW cont	rollod Mochanic	al timing More	hall angle mor	ro rom loss torg	up loss officion	cy of power sy	tom
HALL ANGLE	rpm 0	ligie – Svv com	Tolled Wechanic	ai tirring. More	nairangie, moi	ie i pini, iess torq	ue, less efficiel	cy of power sys	10000
0 @ 10k rpm	rpm 1	_	-		-				10000
0 @ 44k rpm rpm: Ok angle: 0 <turbo <u="">edit MConf></turbo>	hall angle	-	-	-	-	-	-	-	0
Protection		1	Warning if volta	age cutoff is bel	ow 3.4 V, it can	cause damage o	of your battery		
PROTECTION	voltage warning	3.2 V	3.2 V	3.2 V	3.2 V	3.2 V	3.2 V	3.2 V	3.6 V
voltage warning: 3.2 v voltage cutoff: 3.1 V motor limit: 120 °C	voltage cutoff	3.1 V	3.1 V	3.1 V	3.1 V	3.1 V	3.1 V	3.1 V	3.4 V
<mconf calib="" edit="" rx=""></mconf>	motor limit	105 °C	105 °C	105 °C	105 °C	105 °C	105 °C	105 °C	100 °C
	ESC limit	125°C	125 °C	125 °C	125 °C	125 °C	125 °C	125 °C	125 °C
BEC									
BEC voltage: 6.85V voltage: 6.83V <protect <u="">edit RXcalib></protect>	6 V	6 V	6 V	6 V	6 V	6 V	6 V	6 V	6 V