WORLD CHAMPIONSHIP PROVEN PRODUCTS

TRINITY

MX Series ESC User's Manual

NOT INTENDED FOR ANY DRAG RACING APPLICATION

MX SERIES BRUSHLESS SPEED CONTROLLER For *1:10 &1:8 scale Car or Truck*

Thank you for purchasing the industry leading Team Trinity MX Series ESC. This ESC (Electronic Speed Control) was specifically designed for racing applications.This ESC has a massive 200A rating. With all that power you must be careful as that much power could become dangerous. Make sure to read this manual carefully so that you can get the maximum performance and safety out of the ESC. Team Trinity assumes no liability in cases of any damages caused by misuse.

FEATURES

Enhanced throttle response, with excellent linearity and drive-ability.

Ability to use LCD program card to make adjustments.

Throttle curve and punch rate adjustment.

Dynamic boost timing and turbo timing adjustment.

Brake curve and brake rate adjustment.

Data Analysis Capability(RPM,Low voltage and ESC temperature).

Multiple protection features: Low voltage cut-off protection, over-heat protection and throttle signal loss protection.

MX SERIES BRUSHLESS SYSTEM SPECIFICATION

Model	MX8 PRO	MX10 PRO
Cont.Current	220A	200A
Brust Current	1000A	1000A
Suitable Car	1:8 Car	1:10/1:12 Car
Battery cell	2-6s Lipo/ 5-18s NiMH	2-3s Lipo/ 5-10s NiMH
BEC Output	6.0V/7.4V Adjustable/8A	6V/7V Adjustable/5A
Dimension(l*w*h)	55*40*34mm	41.5*37*21mm
Weight(g)	140g	102g

*** MX10 ESC Motor Limit 3.5T**

MX SERIES ESC INTRODUCTION

Please attend to each connections and make sure each assignment is correct.

① Motor wire A ② Power wire(-) ③ Motor wire B

④ Power wire(+) ⑤ Motor wire C ⑥ Singal wire

⑦ Sensor socket ⑧ Fan wire ⑨ Programming wire socket

① Power wire(+) ② Power wire(-) ③ Motor wire A

④ Motor wire B ⑤ Motor wire C ⑥ Programming wire

⑦ Singal wire ⑧ Switch wire ⑨ Sensor socket ⑩ Fan wire

SENSORED MODE

When using a Sensored Brushless motor, the Blue motor wire A, Yellow motor wire B and Orange motor wire C of the ESC must be connected with the Sensored motor wire A,B,C respectively. It is necessary to connect the Sensor wire to the "Sensor" socket on the ESC. Don't change the wires sequence optionally.

SENSORED MODE

When using a Sensorless Brushless motor, Wire A , Wire B and Wire C of the ESC can be connected with the motor wires freely. If the motor runs in the opposite direction, please swap A and B wire connections.

CONNECTION TO THE ESC

Black wire: RX-

Red wire: RX+6.0V

White wire: RX-Signal

LED

Function	LED	LED Status
Low voltage of the battery	Red LED	Blinking
Over-heat of the ESC and motor (95°C)	Red and Blue LED	Blinking

ESC CALIBRATION

- Set up the ESC with the Throttle Range Calibration.
- When using transmitter for the first time you must recalibrate the ESC.

1. Switch off the ESC, then connect ESC with the battery packs and turn on the transmitter; set the EPA value of the throttle channel to 100%.
2. Hold the "Switch" button, Red and Blue LED are on solid, wait for about 2 seconds until the Red LED is off, then pull the throttle trigger to full throttle until Blue LED blinks and will be on solid, the motor beeps.
3. Push the throttle trigger to full brake until the Red LED blinks and will be on solid, the motor beeps.
4. Now return the throttle trigger to the neutral position, both of the Red LED and Blue LED blink simultaneously and will be on solid, the motor beeps. The throttle range calibration is confirmed.
5. Turn off the ESC power switch. (Note: Holding "Switch" button over 2 seconds just can turn off the ESC.)
6. Turn the ESC back ON. You are ready to use the ESC now.

Section		Programmable Item	Programmable Value								
General Setting		Run Mode	Forward/Brake			Forward/Brake/Reverse			Forward/Reverse		
		Low Voltage Cutoff	Disable			Auto(3.0V/Cell)			3.0-11.1V		
		ESC Overheat Protection	95°C		105°C		130°C		Disable		
		Motor Rotation	Normal				Reverse				
		Race Mode	Modify				Stock				
		Dead Band	4%-15%(step 1%)								
		BEC Output	6.0V				7.4V				
Throttle Control		IP Limiter	1-30(step 1)								
		Throttle Rate	1-30(step 1)								
		Drive Freq	1K		2K		4K		8K		16K
		Rpm Lock	1%-100%(step 1%)								
		Throttle Curve	Linear				Custom				
Brake Control		Initial Brake	1%-20%(step 1%)								
		Drag Brake	0%-100%(step 1%)								
		Brake Force	0%	12.5%	25%	37.5%	50%	62.5%	75%	87.5%	100%
		I-Brake Response	1-20(step 1)								
		Brake Rate	1-20(step 1)								
		Brake Freq	1K		2K		4K		8K		16K
		Brake Curve	Linear				Custom				
Timing	Boost	Boost Timing	0-64°(Step 1°)								
		Boost Trigger Level	1-50 (step 1)								
		Boost Trigger Rate	1-10 (step 1)								
	Turbo	Turbo Timing	0-64°(Step 1°)								
		Start RPM	8000-50000rpm(Step 1000)								
		Turbo Delay	Instant	0.05s	0.1s	0.15s	0.2s	0.25s	0.3s	0.35s	0.4s
		Activation Method	Full TH			RPM			Full TH+RPM		
		Turbo On Rate	1-10(step 1)								
		Turbo Off Rate	Instant				1-10(step 1)				

MX SERIES ESC INFORMATION

RUN MODE

Forward /Brake

This is a race setting - reverse is disabled.

You will find in racing, Most tracks will not allow racing with reverse enabled.

Forward /Brake/Reverse(Default)

When using reverse the Electronic Speed Controller requires 2 seconds of continuous neutral from the transmitter prior to allowing reverse to operate.

Forward / Reverse

If the option is active, the RC car could go forward and backward, but couldn't brake.

Note: There is automatic protection within the MX Series ESC. Only after you have stopped and returned the trigger to neutral reverse will become available. If while traveling in reverse, pull the trigger to go forward. This is to help prevent serious damage to the drive train.

LOW VOLTAGE CUTOFF

Prevents batteries from being ran below set voltage. When set on 'Auto', the ESC willdetect the cell of batteries and set the Cut-off voltage to 3.0V/cell.

Example: When using 2s lipo, the low voltage threshold is 6.0V.

ESC OVER HEAT PROTECTION

This setting protects the esc from burning up. If the function is activated, the output power will be gradually reduced to 20% and the blue LED will blink when the temperature of ESC is up to the preset temp.

MOTOR ROTATION

Adjust the direction of the motor rotation from Clockwise or Counter Clockwise.

RACE MODE

Two Options "SPEC" OR "MODIFY" Profiles for Racing. MUST BE IN "SPEC" PROFILE FOR ALL SPEC RACING. When setting the Boost Timing and Turbo Timing to 0 degree, the ESC will automatically go into the SPEC(Stock) mode.

DEAD BAND

Adjustment setting of the sensitivity when in the neutral position in relations to throttle and Brake. Lower value increase the sensitivity.

BEC OUTPUT

Select between 6v or 7.4v output. Recommended 7.4v for high voltage servos.

IP LIMITER

Controls the throttle response through the entire range of throttle travel, the higher the selected value the more aggressive the throttle feel is.

THROTTLE RATE (PUNCH)

Controls the aggressiveness through the full range of acceleration. For High grip surfaces you would run it high and for Low grip surfaces you would run it lower.

DRIVE FREQUENCY

High frequency value provide smoother throttle feeling and Low value provide a more aggressive throttle feeling. (Lower value is recommended for 4wd/Heavier vehicles)

RPM LOCK *(USED FOR DRIFT APPLICATIONS)*

Used to lock the motor rpm to a specified value.

THROTTLE CURVE

The function is used to define the input throttle curve in the ESC.

Option 1:'Linear'

This is where the forward throttle position of the transmitter directly relates to the forward throttle position of the ESC.

Option 2:'Custom'

This allows for a multi-step setting to the forward throttle. This differs from index on the transmitter because the forward throttle input into the ESC can be defined in multiple increasing steps.

INTIAL BRAKE

The function refers to the brake strength applied in the initial position of the brake. The default is 'drag brake', so the brake effect can be smooth.

DRAG BRAKE

The function provides the driver a set percentage of brake when transmitter resting in neutral. (*Drag brake are used in racing to slow a vehicle as you let off approaching a corner versus the driver having to push the brake at every corner.)*

BRAKE FORCE

This feature adjusts the overall strength of the brakes.Higher value results in stronger feel and lower value results in softer feel.

I-BRAKE RESPONSE

Controls the aggressiveness of the intial brake as its activated.
Higher value quicker response/ Lower value slower response.

BRAKE RATE

Controls the overall feeling of the brakes as they are applied. Higher value provides more aggressive feel.

BRAKE FREQUENCY

Controls the feeling of the brakes applied. Higher value provided smoother brakes and Lower value provides more aggressive brakes.

BRAKE CURVE

The function adjusts the brake strength relating to the throttle range, the default is linear.

BOOST TIMING

Boost timing is effective through the whole throttle range, which directly affects the speed on the straightaways and technical areas. When the boost timing is activated, the timing will change dynamically according to the RPM.

BOOST TRIGGER LEVEL

The throttle position where you set the Boost to activate. Higher the value the quicker the boost will activate.

BOOST TRIGGER RATE

The rate at which how fast the boost is applied. Higher the value the quicker the rate is applied.

TURBO TIMING

This function is just used in areas full throttle is applied like long straightaway.

START RPM

Its the set rpm at which the turbo activates. it can be selected by the activation mode.

TURBO DELAY

The delay time the turbo is activated once throttle position is achieved. Higher value will have longer delay in activation.

ACTIVATION METHOD

If "Start RPM and Full Throttle" is selected that means the turbo timing will be activated when the set rpm is reached and at full throttle position. If "Full Throttle" is selected that means the turbo timing will activated ONLY when the throttle is at 100% and the turbo delay time is reached.

TURBO ON RATE

Controls the rate of how fast the turbo settings activate. Higher values will increase the rate the turbo is applied.

TURBO OFF RATE

Controls how fast the motor rpm is reduced when you release from the full throttle position. Higher value will reduce motor rpm quicker.

Troubleshooting Table

Symptom	Cause	Action to take
No motor and servo functions	Wiring problem	Check wire and connectors
	Wrong polarity when connecting the BEC wire to the receiver	Correct the polarity when connecting the BEC wire to the receiver
	Transmitter, Receiver or Battery defective	Replace the components one by one
	Speed control defective	Send for repair
No motor function, but servo is working	Wiring problem	Check wire and connectors
	Sensor wiring defective/missing	Change other wire
	Motor defective	Change other motor
	Speed control defective	Send for repair
While accelerating, motor stutters	Sensor wiring defective	Replace the wire
	Motor or Sensor board defective	Change other motor or sensor board
	Power Capacitor failure	Replace the power capacitor
	Radio interference	Change the components location
	Speed control defective	Send for repair
Motor runs at constant slow speed and never stops	Transmitter settings changed after setup	Repeat set up procedure
	Humidity/water in speed control	Dry the speed control
Radio interference	Transmitter batteries empty	Replace transmitter batteries
	Bad battery connection	Check wire connection
	Receiver, transmitter or servo defective	Replace the components one by one
	Receiver or antenna too close to power wires of motor and battery	Change the components location

LED INDICATOR LIGHT

The best way to understand what is going on with your ESC is by looking at the flashing light.

A RED FLASHING light means that the battery voltage is below the voltage set by the low voltage. To avoid damage to the battery, stop running and charge the battery.

A BLUE AND RED FLASHING light means that the ESC has overheated. At this point you should stop running and let the ESC cool off. Power is limited to 50% when the ESC has overheated.

WARRANTY AND SERVICE

All Team Trinity products are held to the highest standards of manufacturing and quality. We guarantee this product to be free from defects and poor workmanship for a total of 30 Days from purchase. Some things that are not covered are damage due to reverse polarity, operation different from that specified in this manual, or damage due to impact. This is a list of other damages that are not covered under Team Trinity's 30 day warranty:

A) Cut off/Shortened wires
B) Damage to case
C) Damage to PCB or damage due to incorrect soldering
D) Damage due to water or excessive humidity

If you feel that your ESC is not working properly please make sure that it is your ESC that is causing the problem. If you send in your ESC and it is tested to be normal, the owner will be subject to a service fee. If your repair is not covered under warranty, the owner will be issued a service fee as well as a repair/replacement fee. To ensure fast service completely fill out all warranty paperwork that can be found at www.teamtrinity.com. Please call us first at (407)-960-5080 Monday-Thursday between 8am and 6pm so we can try to diagnose and possible resolve the issue.

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