QUICK START MANUAL

THANK YOU!
Thank you for purchasing a Team Orion Brushless ESC based on HMX® Technology. This ESC features some of the latest brushless technologies developed by our world championship winning team. Please read these instructions thoroughly before using the ESC.

WARNING!
This is not a toy, not for children below 14 years of age. It is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision.

1) CONNECT THE ESC TO A DEVICE

In order to calibrate and setup the ESC you need to connect it to one of the following devices:

SMARTPHONES & TABLETS

Android Users:
There is an app for Android devices, which can be downloaded from the Google Play Store. Use the included cable to connect to the ESC.

GET IT ON Google Play

https://play.google.com/store/apps/details?id=com.teamorion.hmx

iOS Users:
An app for iOS® devices is being developed. The optional ORI65193 HMX® BLE module is required to connect to iOS® devices. Visit our website hmxtechnology.com for updates and news. In the meantime the PC software can be used to setup the ESC.

Follow these steps if you're using a smartphone

PC (WINDOWS)

You can download a software for Windows computers to setup the ESC. The software is available on the following website:
http://hmxtechnology.com/dl/software.zip

Follow these steps to connect the ESC to a PC:
- Download the software by typing the above link in your browser.
- Unzip the software.zip file and double click on the file Hmx_Pc_App1.exe
- Follow the on-screen instructions
- Connect the ESC to the PC using a standard Micro USB cable

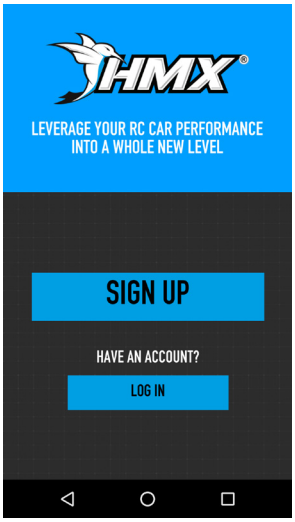
If your PC doesn't detect the ESC, you might need to install USB drivers manually. You can find the drivers on the following website: www.ftdichip.com/Drivers/CDM/CDM21226_Setup.zip

Jump to page 4 if you're using the PC software

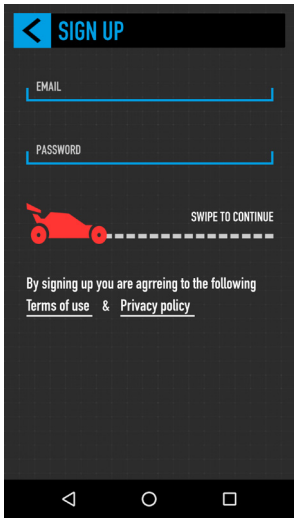
2) FIRST USE OF THE SMARTPHONE APP

Your smartphone needs to have an internet connection when using the app first time.

Connect the ESC with the smartphone using the included HMX cable.

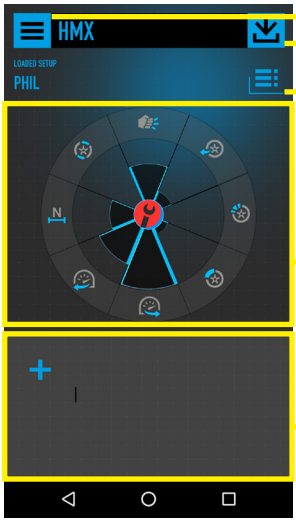


Install the app and open it. Click on Sign Up to create a new user account.



Enter your email and password then drag the car to the right.

ESC Screen (Main Screen)



Tap for firmware upgrade and logout

Tap to download pro setups

Tap to see ESC settings summary

Your settings: tap the wheel to change the settings

Your setups (empty)

You are now ready to use the app.

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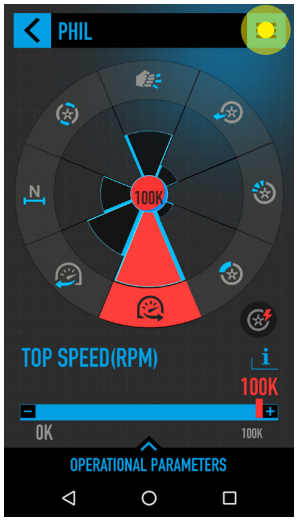
3) CALIBRATE THE ESC USING THE SMARTPHONE APP

ESC Screen (Main Screen) | Setup Screen

Connect the ESC with the smartphone using the included HMX cable.



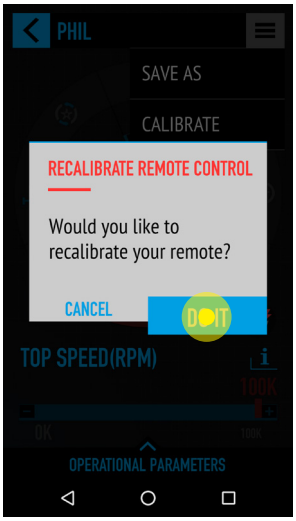
Tap on the center of the wheel.



Open the top right menu



Tap on CALIBRATE



Tap on DO IT

Make sure your ESC is connected and turned on. The wheels of your car must not touch the ground. Center the trims and reset all settings inside the transmitter before proceeding to the calibration.



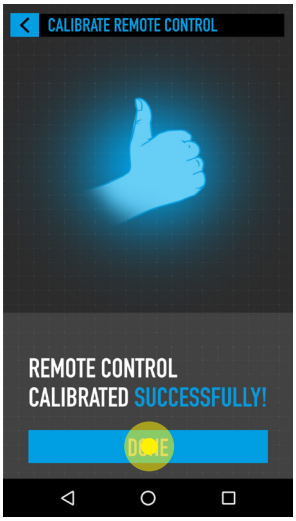
Follow on-screen instructions and tap NEXT



Follow on-screen instructions and tap NEXT



Follow on-screen instructions and tap NEXT



You're done! Tap DONE

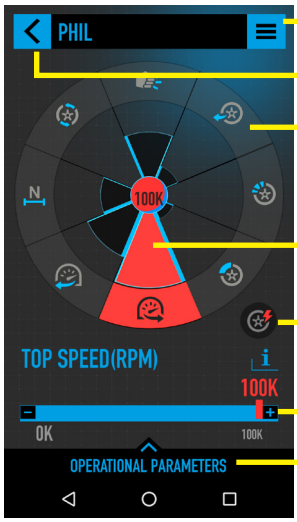
4) CHANGE SETTINGS AND CREATE SETUPS USING THE SMARTPHONE APP

ESC Screen (Main Screen) | Setup Screen | Setup Screen

Connect the ESC with the smartphone using the included HMX cable.



Tap on the center of the wheel.



Overview

- Tap to save setup or calibrate
- Go to ESC Screen
- Tap to choose parameter
- Active parameter
- Tap for timing settings
- Tap +/- to change setting of active parameter
- Tap for operational parameters (settings which are more seldomly used)



Choose a parameter by tapping on the sector of the wheel

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4) CHANGE SETTINGS AND CREATE SETUPS USING THE SMARTPHONE APP

Setup Screen



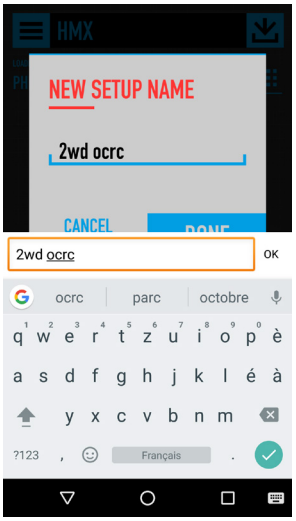
Changes to your ESC settings are instantly saved on your ESC.

Change the value of the parameter by tapping the + and - icons of the slider

Setup Screen



Open the menu on top right and click SAVE AS to save your settings.

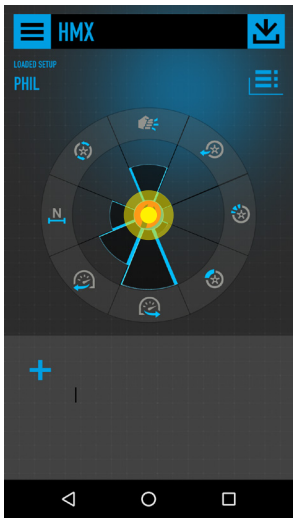


Type a name and tap DONE to save settings and create a new setup

5) CHANGE TIMING SETTINGS

Connect the ESC with the smartphone using the included HMX cable.

ESC Screen (Main Screen)

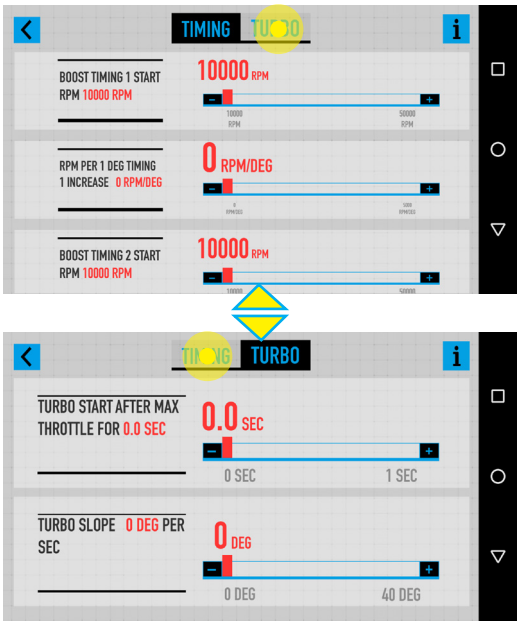


Tap on the center of the wheel.

Setup Screen

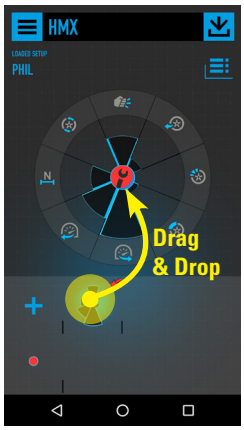


Tap the timing icon

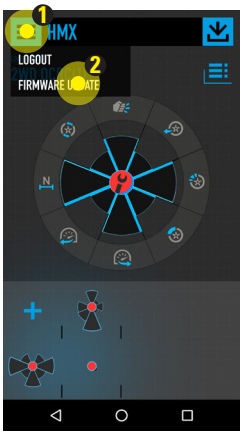


6) OTHER USEFUL FUNCTIONS OF THE SMARTPHONE APP

Apply setup on ESC



Install new firmware



Operational Parameters



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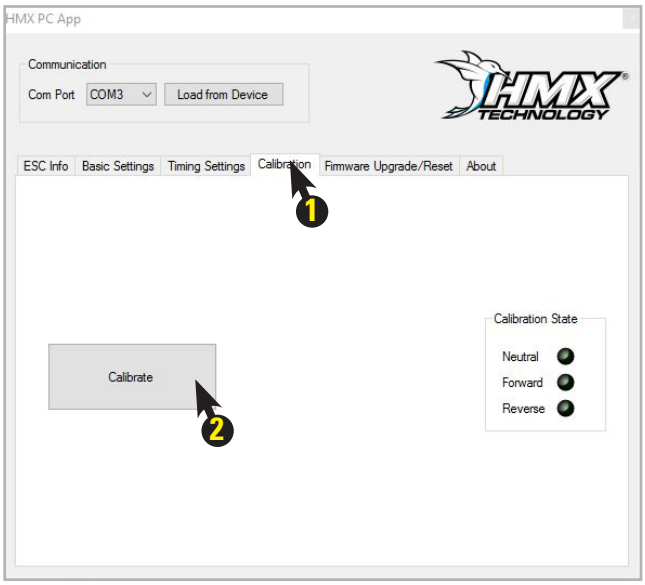
USE THE PC-SOFTWARE (WINDOWS)

1) CALIBRATE THE ESC USING THE PC-SOFTWARE

1) Connect the ESC with the PC using a standard micro USB cable.

2) Choose the right COM port (only 1 port will work)

3) Make sure your ESC is connected and turned on. The wheels of your car must not touch the ground. Center the trims and reset all settings inside the transmitter before proceeding to the calibration.

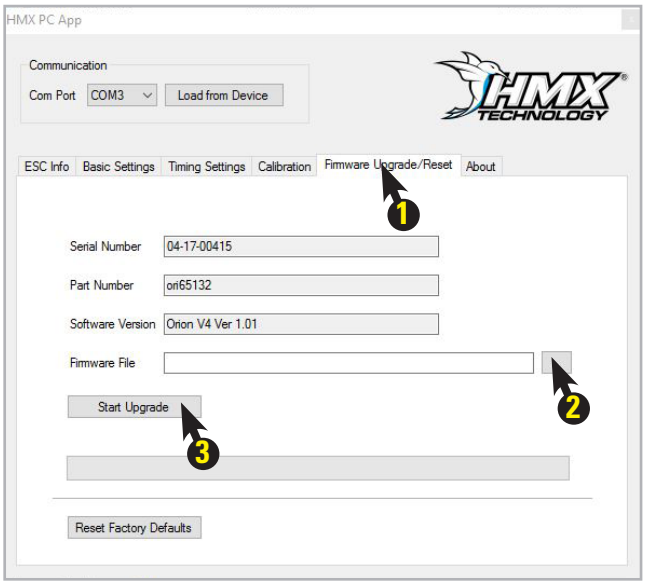


1) Click on calibration
2) Click on Calibrate
3) Follow the on-screen instructions

2) UPDATE THE FIRMWARE USING THE PC-SOFTWARE

1) Connect the ESC with the PC using a standard micro USB cable.

2) Choose the right COM port (only 1 port will work)



1) Click on Firmware Upgrade/Reset
2) Choose a firmware file
(can be downloaded from hmxtechnology.com once available)
3) Click “Start Upgrade”

WARNINGS

- Do not let children use this product without the supervision of an adult.
- Never leave the ESC unsupervised while it is powered on.
- The ESC might get hot during use, be careful when handling it.
- Always disconnect the battery after use, do not store with the battery connected.
- Do not use near flammable materials.
- If the ESC has suspicious reactions, immediately disconnect the battery and discontinue use.

WARRANTY

Team Orion warrants to the original purchaser that the product purchased is free from defects in materials and workmanship at the date of purchase. The purchaser acknowledges that they alone have determined that the product will suitably meet the requirements of the purchaser’s intended use.This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the product. This warranty does not cover damage due to improper installation, operation, maintenance or attempted repair by anyone. Team Orion will, at its option, repair or replace any product determined to be defective in the event of a defect, this is the purchaser’s exclusive remedy. Replacement decisions are at Team Orion’s sole discretion. Team Orion will not be liable for special, indirect or consequential damages, loss of profits or production or commercial loss in any way connected with the product. By the act of use, setup or assembly the user accepts all resulting liability.

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ESC SETTINGS

DRIVE MODE

1. "Forward Only with Brake" this mode is meant for competition use. In this mode the car can go forward and brake, there is no reverse.
2. "Forward/Reverse with Brake" this is the basic all-around mode. In this mode the car can go forward and reverse and can also brake. When you move the throttle to the reverse position while the car is moving forward, brakes are applied until the car stops, reverse cannot engage while the car is moving. To engage reverse, once the car has stopped, release the brakes and move the throttle to the reverse position again.
3. "Forward/Reverse" this mode is meant for Rock Crawler use. In this mode there is no brake, the car can go from forward to reverse immediately without any pause. Do not use this mode with other car types as it can overload and/or damage the ESC.

DRAG BRAKE

Sets the amount of brake automatically applied when the throttle is returned to the neutral position. This simulates the engine breaking effect of a real car. The higher the value the stronger the brakes.

CUT-OFF VOLTAGE

This function helps to prevent battery over-discharge by continuously monitoring the battery voltage and reducing the power output If the voltage becomes lower than the preset threshold. The setting relates to a single cell voltage, so a 3.2V setting means 6.4V for a 2S two cell Lipo battery. A lower value discharges the battery further but gives a longer runtime.

PUNCH

This setting sets the throttle punch when the car accelerates. A higher setting gives a stronger acceleration. Use a lower setting for lower grip conditions.

MAX TORQUE

This setting adjusts the ESC response to throttle inputs. A higher value means that the ESC will react quicker to throttle inputs, resulting in the motor spinning up quicker. This setting is very effective to increase performance with stock motors.

MAX BRAKE

This setting adjusts the maximum braking force. A higher value provides stronger braking, but it also causes extra stress to the ESC and motor. Always use the lowest value possible while maintaining sufficient braking power.

INITIAL BRAKE

This setting adjusts the minimum amount of braking power which is applied when the brakes engage. Adjust in order to modify the brake feeling to your liking.

NEUTRAL RANGE

This setting adjusts the throttle sensitivity around the neutral point of the transmitter. A higher value means that the throttle will have to be moved further for the ESC to react to your throttle inputs.

TOP SPEED

This setting is an RPM limiter, it will limit the motor to the RPM you set, thus reducing the maximum speed and power output reached by the motor.

BLINKY MODE

When enabled, this setting sets the ESC in „Blinky" no timing mode. In this mode all the timing functions of the ESC are disabled.

BEC VOLTAGE

This setting adjusts the receiver/servo supply Voltage. 6V is compatible with all electronics and 7,4V when used with compatible electronics can help provide more performance from the steering servo.

NUMBER OF CELLS

Adjust this setting to the number of cells making up your battery. Depending on the ESC version this setting may be fixed and cannot be changed by the user.

OVERHEAT PROTECTION

This setting activates or deactivates the overheating protection. When it is enabled, if the ESC overheats the power output will be cut to prevent damage to the ESC. When it is disabled, the ESC will keep on working even up to potentially unsafe temperatures which can cause the ESC to become damaged and/or fail.

NUMBER OF POLES

Adjust this setting to the motor's number of poles so that the ESC can properly manage the power delivery to the motor.

TIMING SETTINGS

Motor timing increases performance, but also causes the ESC and motor to run hotter. It needs to be adjusted for track conditions, overheating can cause the motor and/or ESC to become damaged or fail.

The HMX ESC uses a single max timing setting for all three timing settings, timing 1, timing 2 and turbo timing. These three timing settings will be added one on top of the other, following your settings, until the max timing setting is reached. This means that their respective effects are connected together as two or three of these timing functions can be active at the same time.

Timing 1 and Timing 2

With the HMX, you can adjust the RPM at which the timing is enabled (timing start) and the rate at which it is applied (timing scale). This allows you to fine tune the torque/speed curve to your liking.

Lower start RPM and/or lower scale RPM = more performance
Higher start RPM and/or higher scale RPM = less performance
Higher max timing = more performance

For example:

Timing 1 start 12000 RPM & timing 1 scale 1000 will activate timing at 12000 RPM and with a scale increase of 1 degree every 1000 RPM. If max timing setting is set to 10, this means that at 22000 RPM you have reached the max timing of 10 degrees.

Note: you can start by adjusting Timing 1 only and set Timing 2 later if you need further fine tuning. When the setting is at 50000/5000RPM it's similar to disabling timing.

Turbo Timing

This is an extra timing function which is added onto timing 1 and timing 2, but only at full throttle (down the straight for example).

Turbo Delay

This setting adjusts how long you have to remain at full throttle before turbo timing activates.

Turbo Slope

This setting adjusts how fast the turbo timing is applied while you are at full throttle. A lower value results in a slower timing increase and a higher value results in a faster timing increase.

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HOW CAN I CONNECT TO THE HMX® ESC?

Android mobile devices:	OTP cable (included) or optional BLE wireless dongle (ORI65193)
iOS mobile devices:	Optional BLE wireless dongle required (ORI65193)
Windows Computers:	PC-Software (download here: www.hmxtechnology.com/downloads/)
Mac Computers:	no software available

DIFFERENCE BETWEEN MODIFIED AND BLINKY - FAQ

Which ESC model should I buy, blinky or modified?

- If you're a pure stock racer who wants to participate at sanctioned stock races, you should go for the ORI65133 blinky ESC. The pre-installed firmware of this model has been fine tuned and optimized to reach the best performance and throttle/brake feeling using stock motors.
- If you're a modified racer using modified motors, you should go for the ORI65132 modified ESC. The pre-installed firmware of this model has been fine tuned and optimized to reach the best performance and throttle/brake feeling using modified motors.

Is it possible to install the blinky firmware on a modified ESC and vice versa?

- Yes this is possible using the smartphone app or the PC software. The firmware can be found directly in the app or on our website hmxtechnology.com/downloads if you're using the PC-software.
- Once installed on your ESC you will have the exact same result as if you bought the ESC with the firmware pre-installed.

In the app I have seen a blinky setting in the operational parameters. What is the difference of the blinky firmware and the blinky setting?

- If you turn on the blinky setting in the modified firmware, the timing functions of your ESC will be disabled and the ESC's red LED will blink. Timing settings will be ignored by the ESC when turned to blinky mode.
- However, with this setting you won't have the special, hidden blinky performance settings, which are included in the blinky firmware.
- Futhermore the modified firmware won't be homologated for sanctioned races.
- Turning on or off the blinky setting in the blinky firmware does not have any effect.

I installed the blinky firmware but I still can change timing settings in the app or PC software. Will the ESC apply those timing settings?

- No, if you have the blinky firmware installed or the blinky setting turned on in the operational parameters, all timing will be ignored by the ESC.

Is the hardware of the two models any different?

- No, there is no difference in hardware. Both models, blinky and modified, are technically identical.

HMX® ACCESSORIES

ORI65187 HMX Programming Cable for Android Phones (OTG, Micro USB, 30cm)
ORI65188 HMX Capacitor Bank for 2S
ORI65189 HMX Capacitor Bank for 4S
ORI65190 HMX Switch
ORI65191 HMX Cooling Fan 2S
ORI65192 HMX Cooling Fan 4S
ORI65193 HMX BLE module (required for iOS® devices, optional for Android® devices)

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