# User Manual

Version : V1.0   2021.12

Contents

aRcer X Tune Function Introduction

RC Super X / RC Mini X ECU has WiFi communication function. With aRacer X Tune APP connects to the ECU(*) via WiFi, it can fit the fuel and ignition range of bikes which with modified air filter, exhaust system, and engine displacement are increased by 25%, or the horsepower is increased by 20% or less. For modifications beyond this range, it is recommended to use the RC Super series ECU with SpeedTuning tuning software for tuning to ensure the quality of the tuning and the performance of the engine.

*Each ECU of RC Mini X has its own ID, and users can upgrade the functions they need to use.

The main functions include：

- Monitor：Built-in three display modes
- Engine calibration：
  - 1、 Fuel setting
    - a、 Fuel Base
    - b、 Fuel Adj.
    - c、 Fuel Acc.
    - d、 Inj. Angle
    - e、 Temp. Comp.
    - f、 Crank Comp.
    - g、 Target AFR
  - 2、 Ignition setting
    - a、 Spark Angle
    - b、 Backfire
  - 3、 Engine setting
    - a、 Idle RPM
    - b、 Idle Adj.
    - c、 RPM Limit
    - d、 VVA
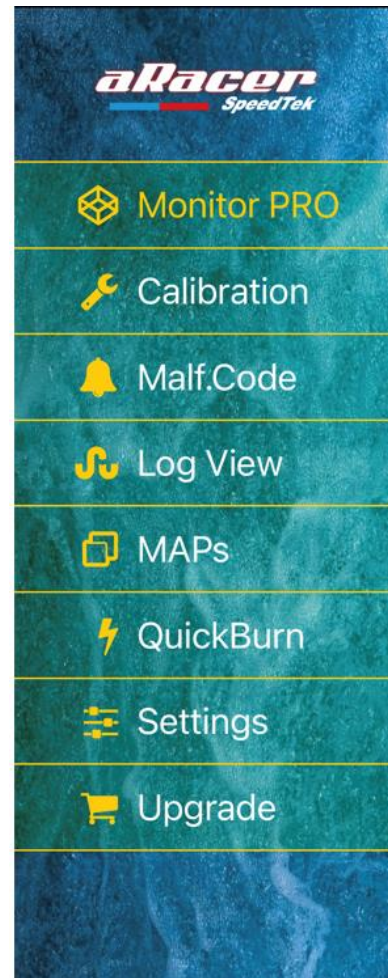
  e、 Dec Fuel Cut

  f、 Auto Tune

  g、 WB O2 CL

  h、 NB O2 CL

 4、 Vehicle setting

  a、 Speed Gain

  b、 Fan

  c、 Launch Control

  d、 Pit Limit

  e、 TPS Learn

  f、 R. Button

  g、 Traction Control

 5、 Quick Shift setting

  a、 QS Wizard

  b、 Quick Shift

  c、 QS Cut Time

- Malfunction Codes：monitor the fault codes that occur immediately.
- Record Analysis：ECU record data can be analyzed.
- File Save：Save, load or share the adjusted data.
- QB Flash：Flash data to ECU from cloud database.
- Setting：WiFi password, unit, language and other related settings.
- Upgrade：Check the status of the function, you can turn on the function that is not enabled

aRacer X Tune APP Download

It can be downloaded from Google Play with Android phones, and App

Store with iOS phones.

aRacer X Tune Connection

Connection Symbol Definition
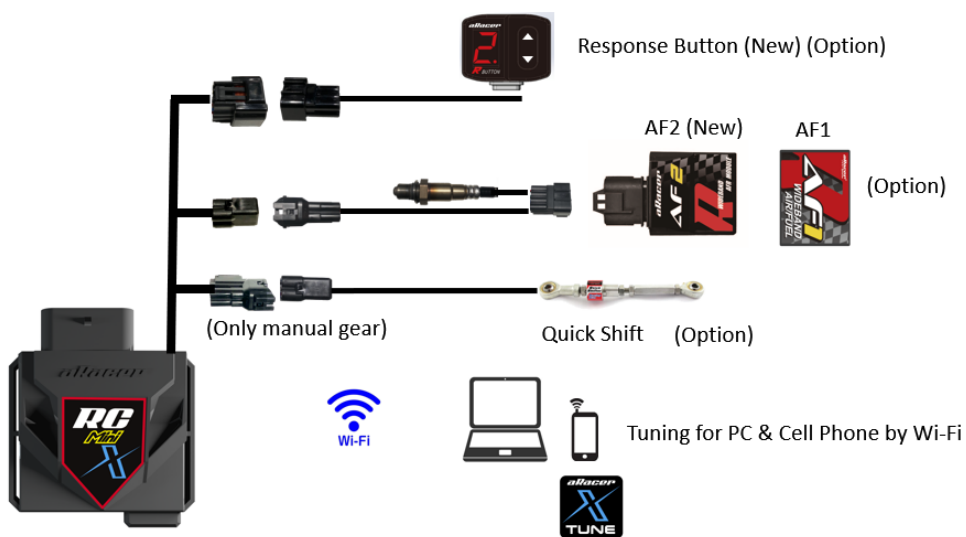
Disconnected

WiFi connected、ECU disconnected

All connected

Connected but in flash broken mode

aRacer X Tune & Mini X ECU System Diagram

Response Button (New) (Option)

AF2 (New)   AF1

(Option)

(Only manual gear)   Quick Shift   (Option)

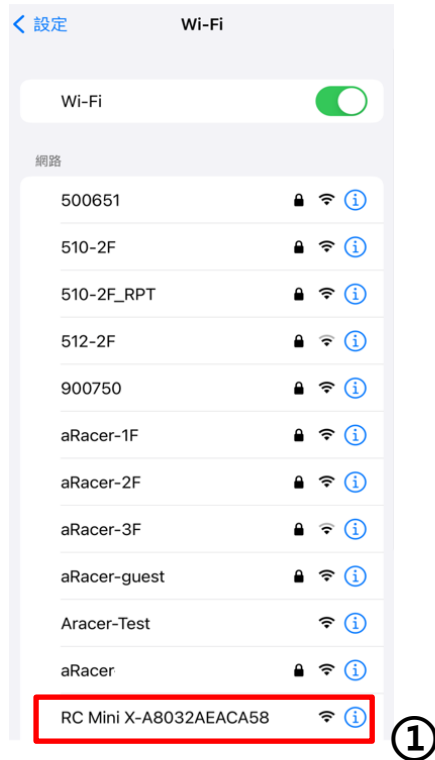Wi-Fi   Tuning for PC & Cell Phone by Wi-Fi

* 1 to 2 expansion cable is not required for general use & adjustment.

Connection Of iOS

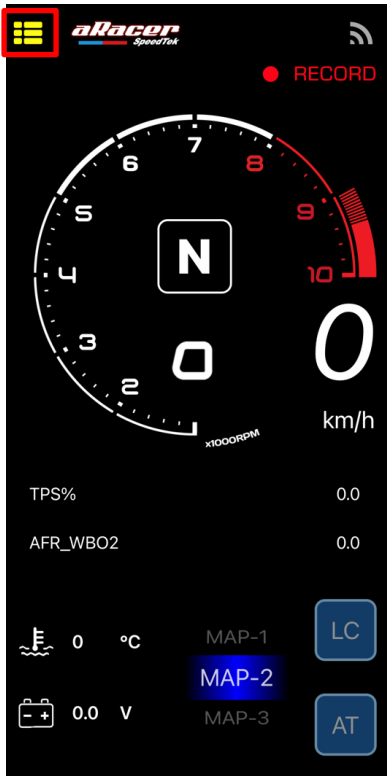Step1 Choose your ECU to be connected on the WiFi setting page, and click Connect.

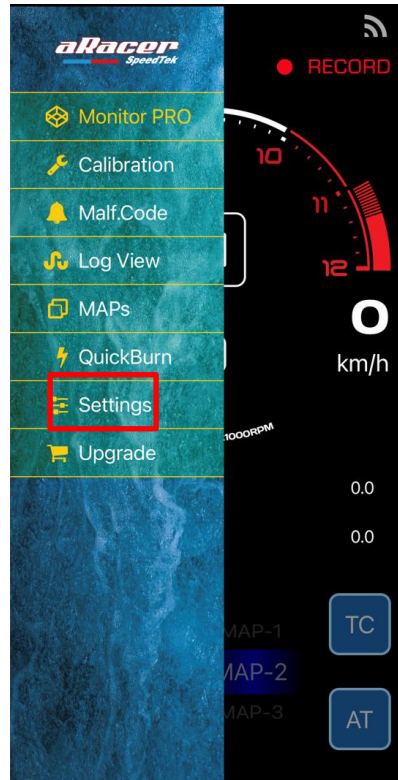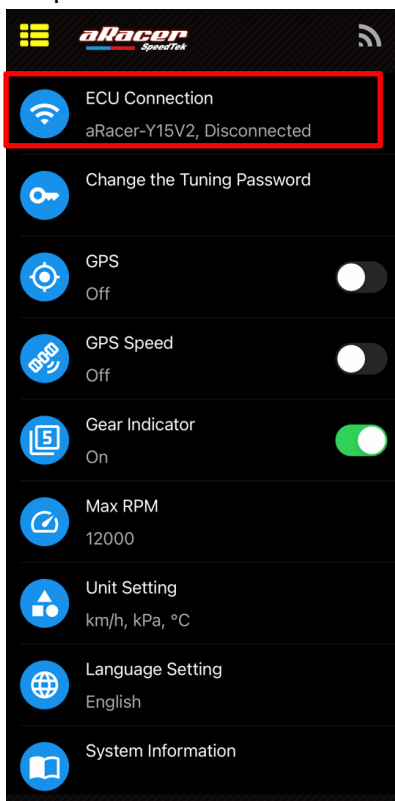Step2 Open aRacer X Tune, click the Settings page.

②

③

Step3 Click the ECU connection, click your ECU to connect.

④

⑤

Step4 If it connects successfully, the WiFi symbol turns green.

⑥   ⑦

ECU ID & Password setting

ECU connection WiFi(Hotspot) setting

Connection Of Android

Step1 Choose the ECU that you want to connect on the WiFi setting page, and click Connect.

Step2 Open aRacer X Tune, click the settings page.
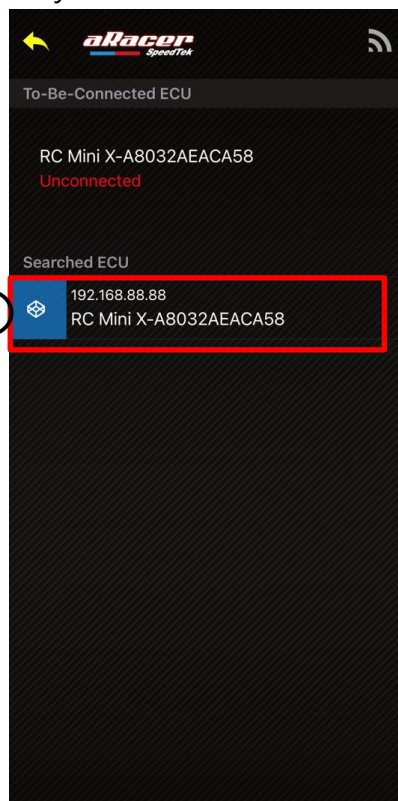

Step3 Click the ECU connection, click your ECU to connect.

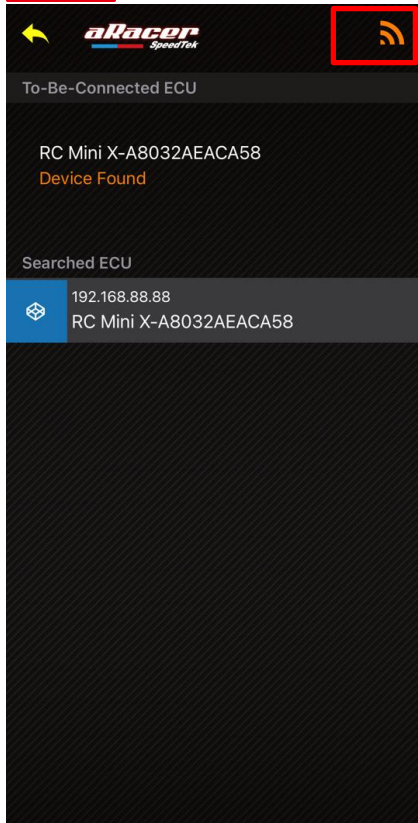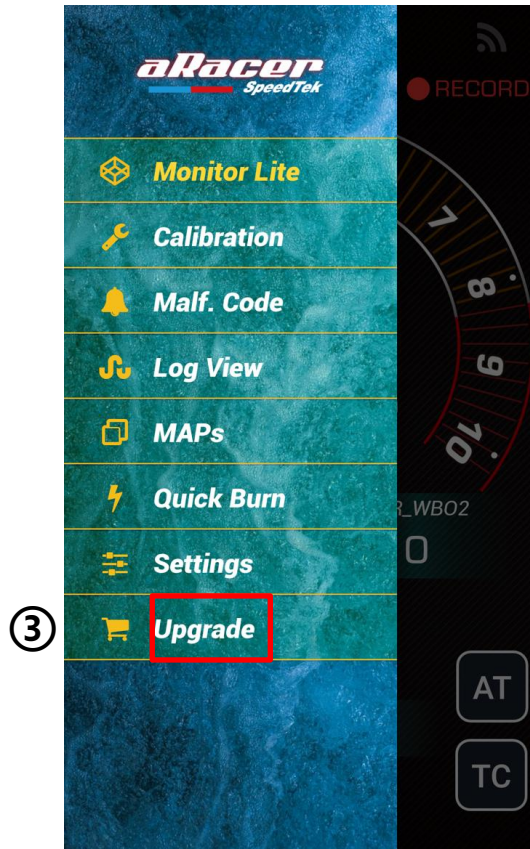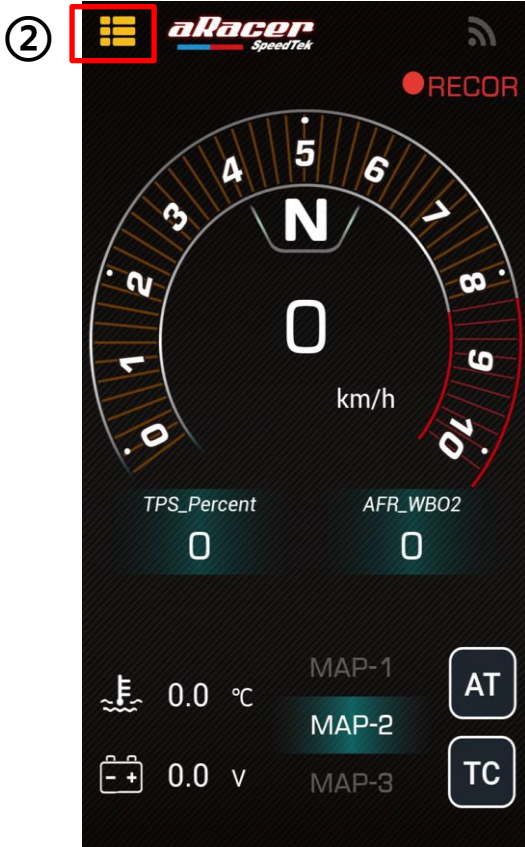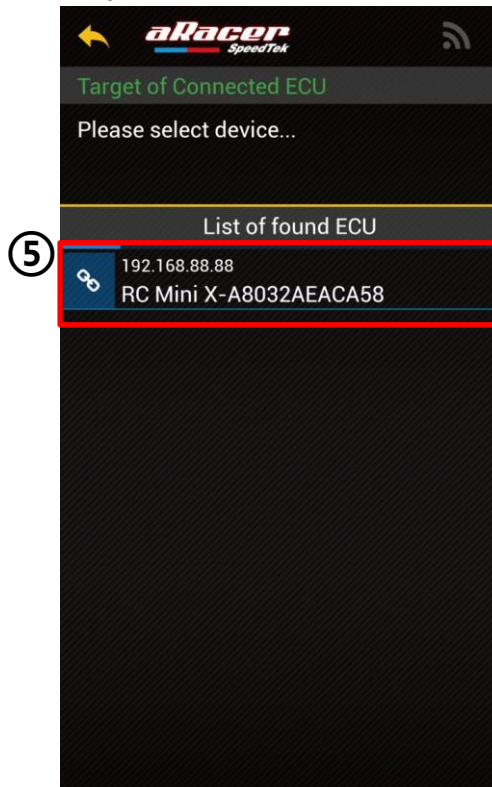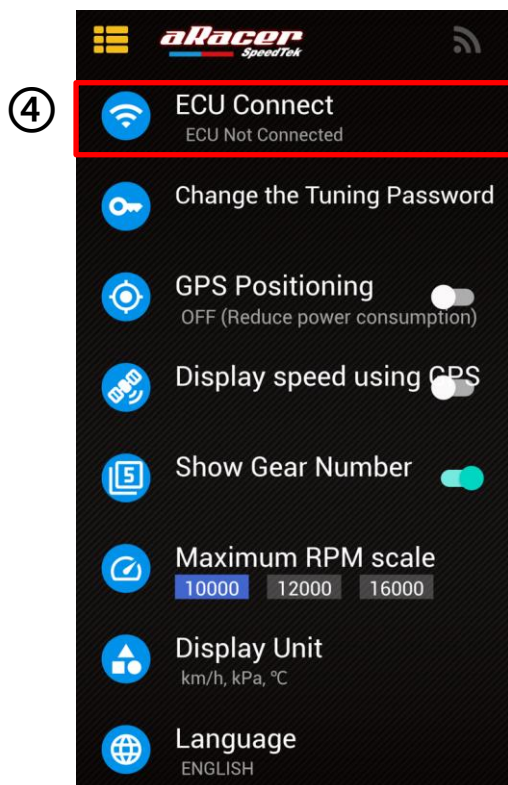Step4 If it connects successfully, the WiFi symbol turns green.

⑥
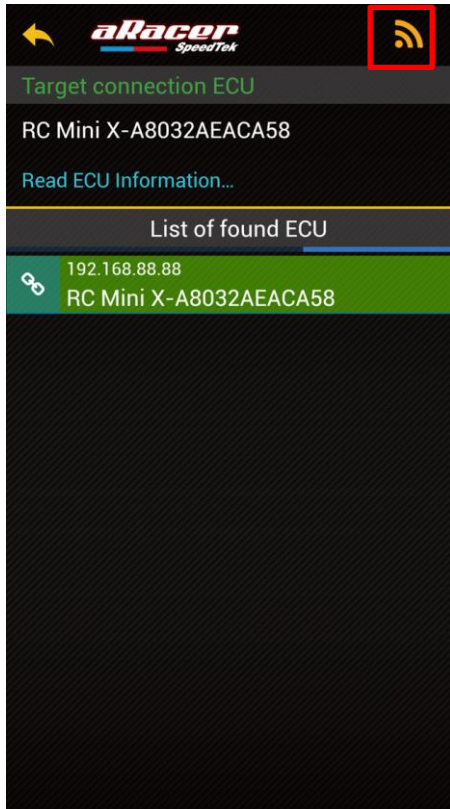
⑦
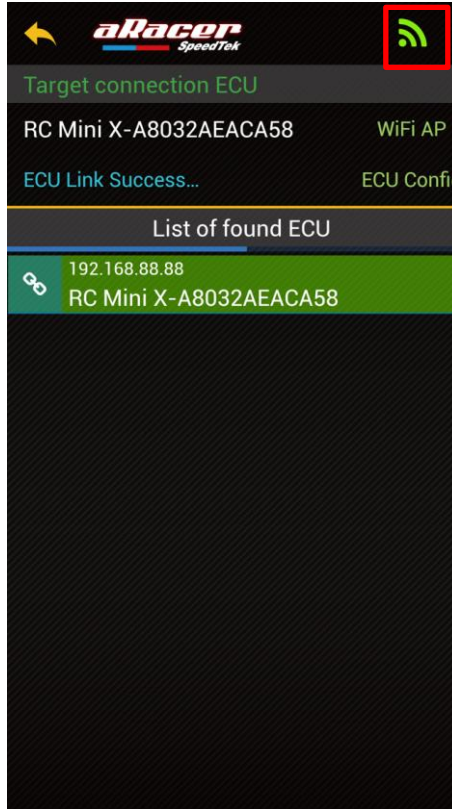
aRacer X Tune Upgrade Instruction
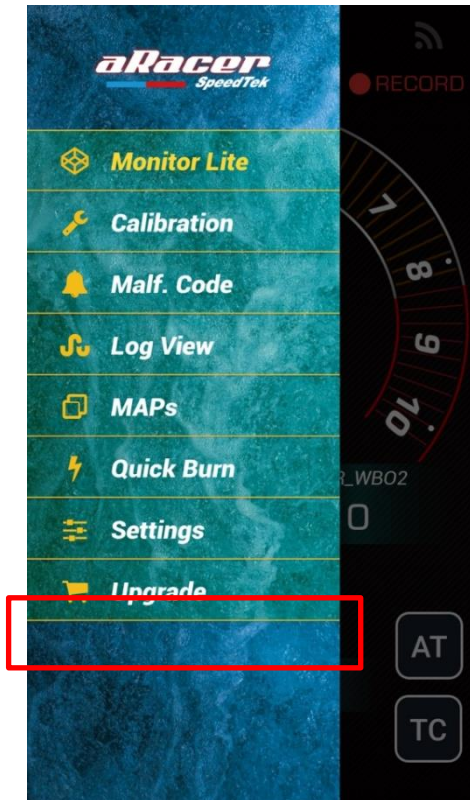
According to different countries and regions, Mini X ECU will have different default opening items. Users can directly purchase upgraded functions through the APP according to their requirements.

Before purchasing, you can also try the function for 5 minutes through the trial function. All the set values will be cleared directly after the time is over.
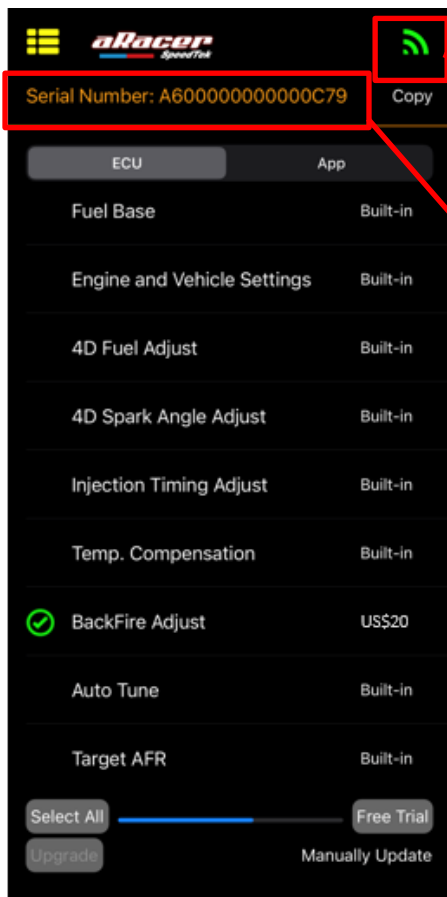
Before upgrading the function, make sure that the ECU is connected.

Before upgrading, make sure that the serial number is the same as the sticker on the ECU shell.

Fuction Upgrade Of iOS

Step1 Connect the ECU with WiFi. After opening the upgrade page, you can see the current ECU function status, and then select the item you want to upgrade.
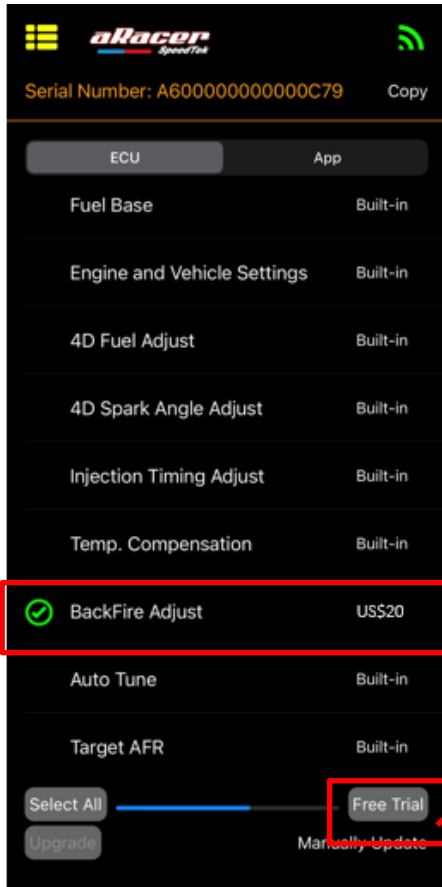
⚠️Make sure that Internet connection is good.

Confirm purchase

Press this button for a five-minute trial function. As the time is up, the value will return to the default setting.

Step2 Fill in the invoice information, confirm that the ECU serial number and purchase function items are correct, and then press the payment button.

Fill in invoice information

Confirm purchase

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Confirm payment

Step3 Fill in credit card information.

Step4 After the payment is successful, click aRacer X Tune to return to the APP screen.
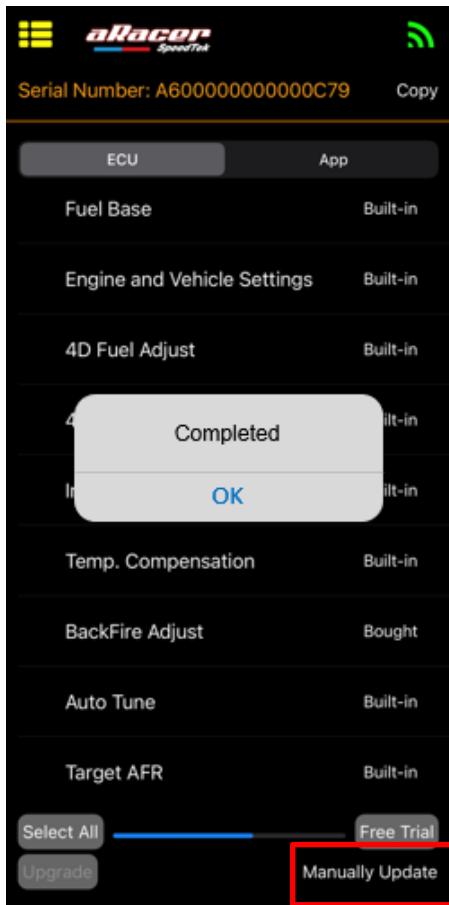
Step5 Back to this APP screen, after popping out the completion window, it means that the upgrade has been completed. If the completion window is not popped out, you can click Manual Update to complete the upgrade.

Turn off and on the power of the vehicle and reconnect to the ECU to use the new functions.
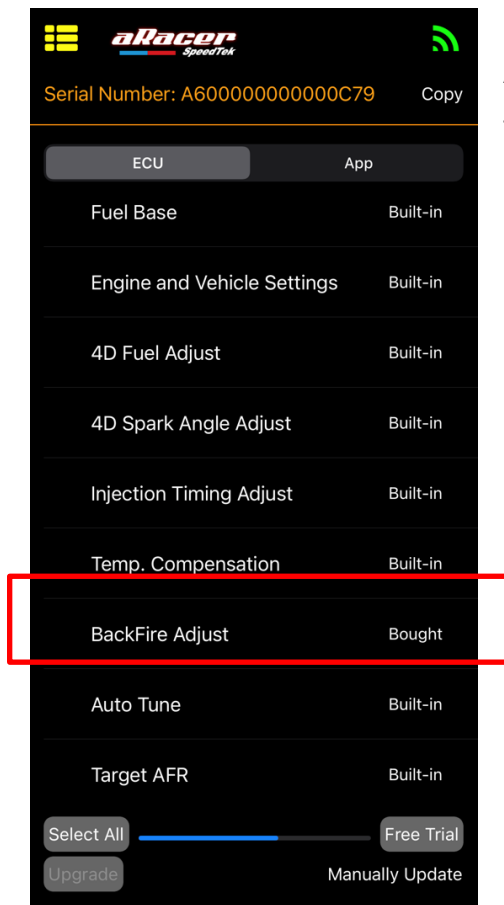
After reconnecting, you can confirm that the purchased upgrade items have been purchased.

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Function Upgrade Of Android A

Use ECU factory settings of WiFi (Method 2 to change ECU WiFi settings, please see appendix).

⚠️When using WiFi to connect the ECU with Android phones, mobile internet cannot be used at the same time. Therefore, it is necessary to make the ECU connecting to the mobile hotspot. The mobile phone can connect to the Internet through the 4G/5G network to connect to the Internet and simultaneously connect to the ECU to enable the function. Follow the steps below to set up.

Step1 Set the name of the mobile hotspot to Aracer-Test and do not set a password. If you cannot do so, you must lower the security of the hotspot.
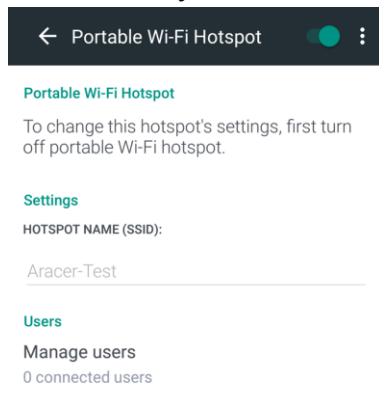
Step2 Turn on the power of the vehicle and confirm that the ECU has connected to the mobile phone hotspot.

⚠️If aRacer-ECU does not appear, restart the mobile phone and hotspot, and turn off the vehicle's power for 1 minute, then turn it on again.
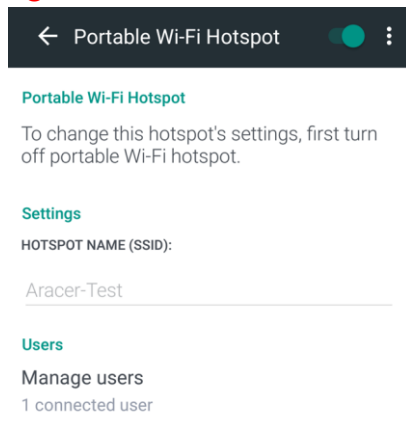
aRacer X Tune
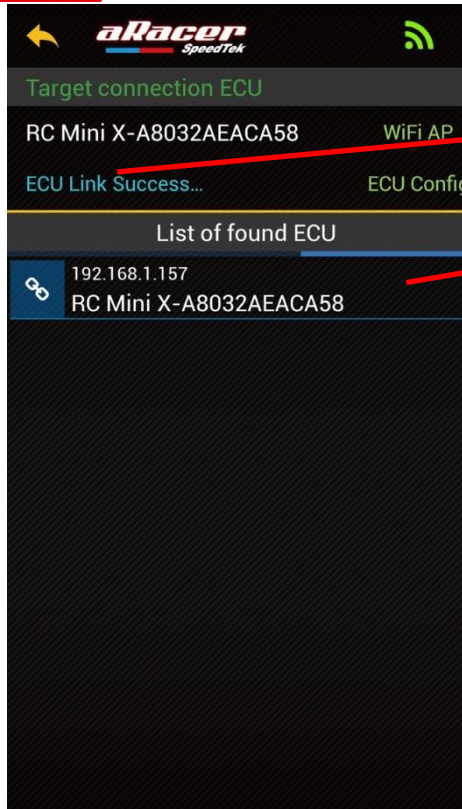
Step3 Open the aRacer X Tune APP, open the ECU connection in the settings.

Confirm ECU connected

Select ECU

Step4 Open the upgrade page, select the item that needs to be upgraded, and click to upgrade.

Order Information

*Name

*Cell phone:

*Address

*Email:

Fill in invoice information

Step5 Fill in the invoice information, confirm that the ECU serial number and purchase function items are correct, and then press the payment button.

ECU Serial Number：
A600000000000C79

Order Number：
20211209537603

Product Name	Price
BackFire Adjust(A6_F_7)	600

Swipe amount：600
Total points：1000

Payment method:

⦿ Credit Card VISA MasterCard JCB

☐ I have read and understood aRacer POINTS terms and conditions of use •

Place an order and pay safely

Confirm purchase

Confirm payment

Enter credit card information.

core.newebpay.com/MP

信用卡一次付清

⦿ 一次付清

信用卡號： VISA MasterCard JCB

有效月年：
選擇 ▼ / 選擇 ▼ 年

背面末三碼：
背面末三碼   888

填寫付款人信箱：
Wild5221@gmail.com
Email格式正確。

☐ 請再次確認您的「訂單資訊」及「付

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After the payment is successful, the purchased features are displayed.
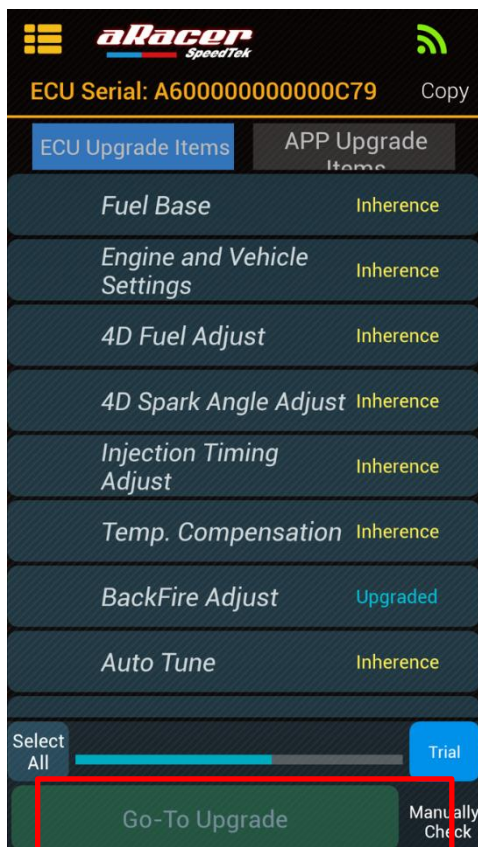
Step6 Back to this APP screen, the purchase item shows that it has been upgraded, indicating that the upgrade has been completed. If the completion window does not pop up, you can click Manual Update to complete the upgrade.

Turn off and on the power of the vehicle and reconnect to the ECU to use the new functions.

aRacer X Tune APP Function

1. Monitor
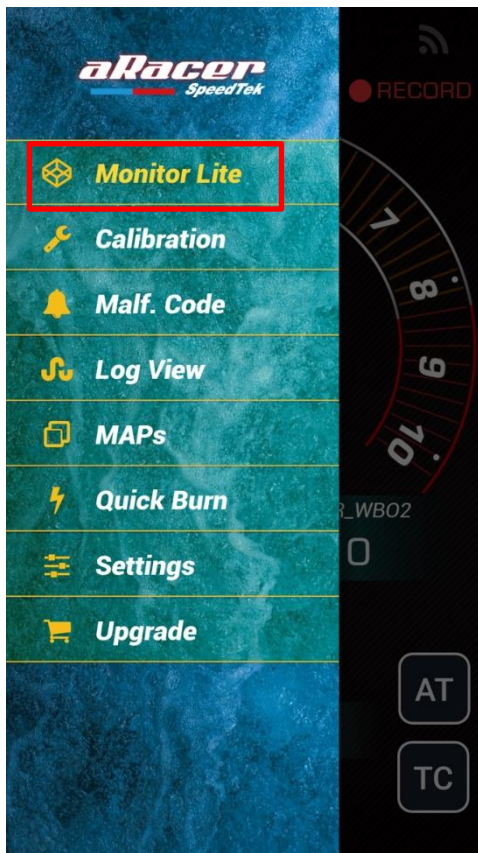
Press the button to switch the monitor style.

Monitor PRO
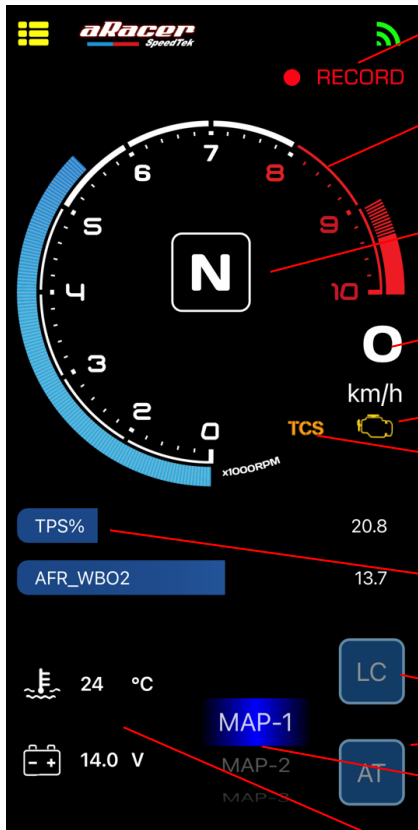
ECU record switch

The rpm range can be changed on the setting page

The gear number can be turned off on the setting page

Long press to switch to GPS speed

Lights up when a malfunction occurs

Flashes when TCS is operating

Long press to change monitoring

"Shortcut Button", long press can replace the function (*)

MAP1~3 selection (*)

Fixed display of engine temperature and ECU voltage

Monitor PRO, Horizontal display
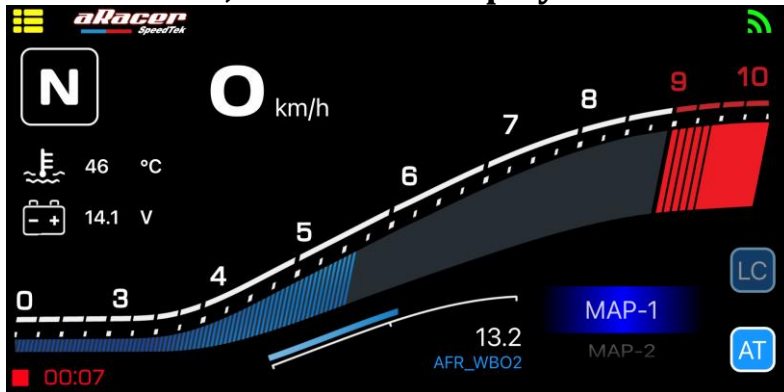
(*) Need to purchase related functions to use.

Monitor Lite

ECU record switch

The rpm range can be changed on the setting

The gear number can be turned off on the setting page

Long press to switch to GPS speed

Lights up when a malfunction

Flashes when TCS is operating

Long press to change monitoring

"Shortcut Button", long press can replace the function (*)

MAP1~3 selection (*)

Fixed display of engine temperature and ECU voltage

Monitor Lite, Horizontal display

(*) Need to purchase related functions to use.
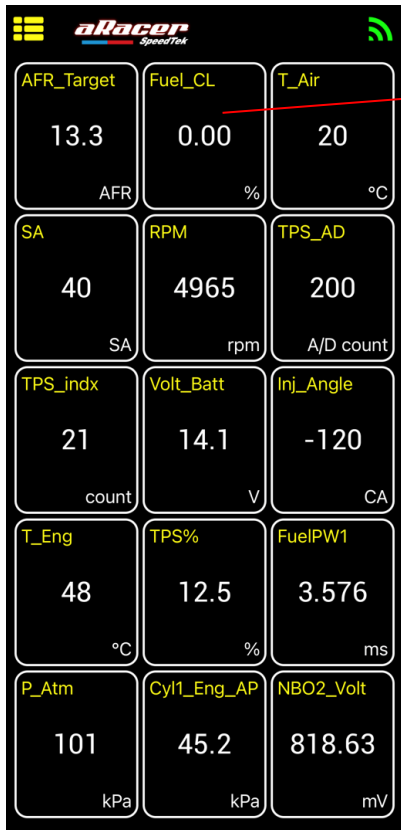
Monitor

Long press to drag sort

Monitor, Horizontal display

2. Calibration
2.1 Fuel
a、 Fuel Base
Adjust the amount of fuel base for all operation range. It is usually the first step of calibration.
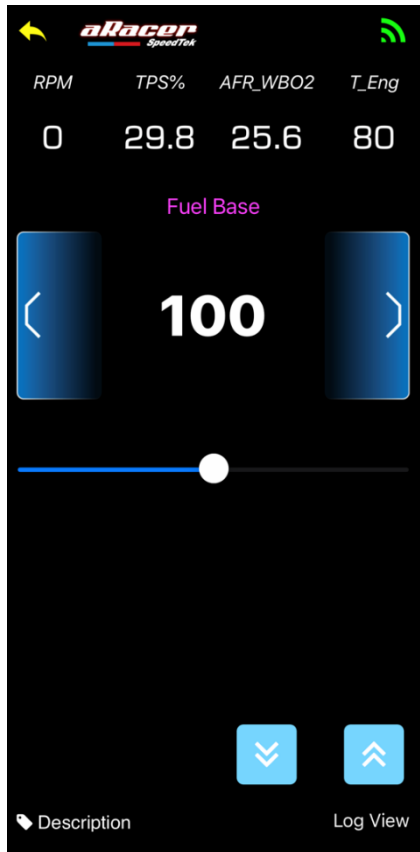
Calibration
100% is the fuel base, 110% means 10% fuel increasing, and 90% means 10% fuel decreasing.

b、 Fuel Adj.
Fuel of all cylinders are corrected by factors with corresponding throttle position (TPS) and engine speed (RPM).

Calibration
100% is the fuel base, 110% means 10% fuel increasing, and 90% means 10% fuel decreasing.
You can calibrate the factors to make AFR_WBO2 being 12.8~13.3 with different engine condition that having best performance.

Press this button to quickly open the Log View, which is convenient for users to compare the adjusted values with the Log data.
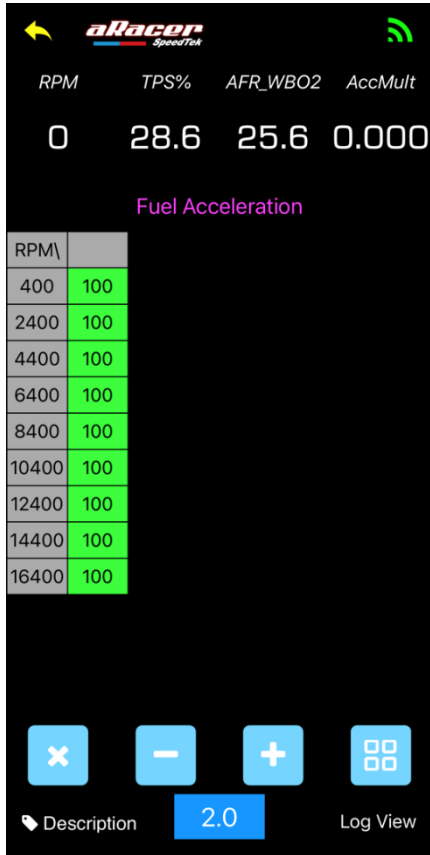
c、 Fuel Acc.

At the moment of acceleration, the air-fuel ratio may be rich or leaner. Through proper adjustment of the acceleration fuel, the air-fuel ratio value is within the ideal range to obtain the best throttle response.
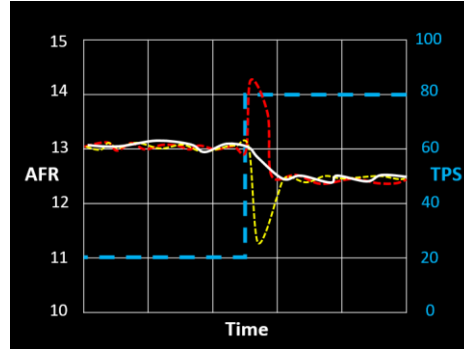
Calibration

100% is the acceleration fuel base, 110% means 10% fuel increasing, and 90% means 10% fuel decreasing.

When accelerating, the AFR value decrease transiently as the red line in picture. You can increase the value of acceleration fuel.

When accelerating, the AFR value decrease transiently as the yellow line in picture. You can decrease the value of acceleration fuel.

d、 Inj. Angle

According to the percentage of throttle position (TPS) and engine speed (RPM), the start angle of fuel injection under different conditions can be adjusted.

Calibration

The value 0 crank angle (CA) is the TDC of compression stroke. Positive (+) value means timing advance, negative (-) value means timing retard.

When calibrating on dynamometer, you can increase or decrease 30 degrees as a step to find the best performance of engine.

Inj. Angle table

TPS\RPM	800	1600	2400	3200	4000	4800
0	-180	-180	-180	-180	-180	-180
2	-180	-180	-180	-180	-180	-180
5	-180	-180	-180	-180	-180	-180
10	-180	-180	-180	-180	-180	-180
20	-180	-180	-180	-180	-180	-180
40	-180	-180	-180	-180	-180	-180
60	-180	-180	-180	-180	-180	-180
80	-180	-180	-180	-180	-180	-180
100	0	0	0	0	0	0

e、 Temp. Comp.

Fuel compensated by engine temperature, 100 is the base, 110 is 10% fuel increasing, 90 is 10% fuel decreasing.

Calibration

a. Complete the setting of Fuel Map (Fuel Base and Fuel Adj) when the engine reaches operating temperature.

b. Define the reference point (such as 5000RPM and 60kPa manifold pressure), confirm that the actual air-fuel ratio (AFR_WBO2) of the engine temperature of 80~104 degrees (T_Eng) is close to the target AFR.

c. After confirming the reference point, the engine needs to stand for more than 8 hours.

d. Start the engine to maintain this set point and monitor the actual air-fuel ratio value

Temp. Compensation table

T_Eng	
0	100
16	100
32	100
48	100
64	100
80	100
96	100
112	100
128	100

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(AFR_WBO2), adjust temperature compensation as the engine temperature (T_Eng) rises so that the air-fuel ratio is less than or equal to the AFR_target to complete this temperature compensation setting.
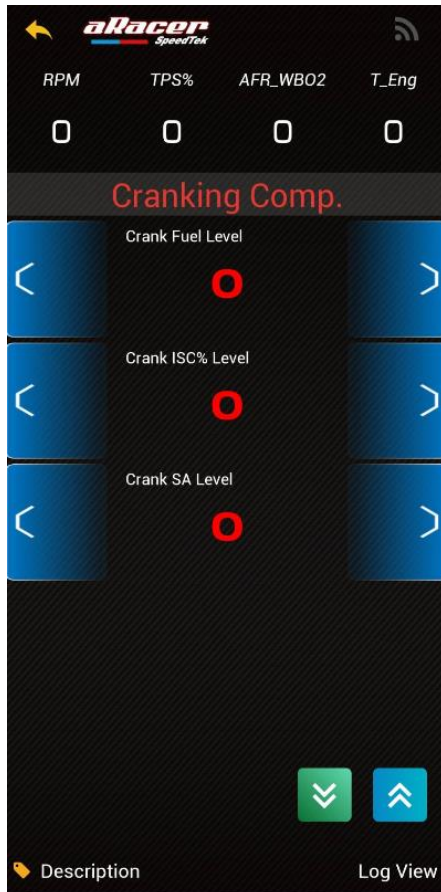
f、 Crank Comp.

Crank Compensation, provide users adjustment items such as cranking fuel, cranking air volume and cranking ignition timing.

Calibration

Crank Fuel Level The setting value directly affects the performance of cranking up, too lean or rich will cause the cranking up not to be smooth.

Calibration,

a. The Crank Fuel setting will affect the actual starting air-fuel ratio. After cranking, the richest value of the actual air-fuel ratio (AFR_WBO2) is about 11.5~12.5.

b. If the actual air-fuel ratio (AFR_WBO2) is too rich, the value of the Crank Fuel Level can be increased, and if it is too lean, it will decrease. Refer to the parameter AFR_Target before cranking

c. The adjustment parameter range is Level-5~5, the smaller the level, the less the starting fuel, the larger the level, the more starting fuel.

Crank ISC% Level The cranking air volume can be increased or decreased according to this compensation value. If the value is too small, it will be easy to crank fail, and if the value is too large, it will be easy to high idle. Refer to the parameter ISC_Air_Flow before cranking.
The adjustment parameter range is Level-5~5, the smaller the level, the less the starting air flow, the larger the level, the more starting air flow.

Crank SA Level The level setting can improve the performance of the engine at the moment of cranking. The user can increase or decrease the cranking ignition timing according to the engine compression ratio. Generally, when the compression ratio increases, the ignition timing will decrease to prevent engine

reversal.

The adjustment parameter range is Level-5~5, the smaller the level, the less the starting ignition timing, the larger the level, the more starting ignition timing.

TPS\RPM	800	1600	2400	3200	4000	4800
0	13.3	13.3	13.3	13.3	13.3	13.3
2	13.3	13.3	13.3	13.3	13.3	13.3
5	13.3	13.3	13.3	13.3	13.3	13.3
10	13.3	13.3	13.3	13.3	13.3	13.3
20	13.3	13.3	13.3	13.3	13.3	13.3
40	13.3	13.3	13.3	13.3	13.3	13.3
60	13.3	13.3	13.3	13.3	13.3	13.3
80	13.2	13.2	13.2	13.1	13.1	13.1
100	13.2	13.2	13.0	12.9	12.9	12.8

RPM 0 **TPS%** 47.1 **AFR_Target** 10.7 **AFR_WBO2** 25.6

AFR Target_1

Description 0.1 Log View

g、 Target AFR

There are three AFR Target for setting in the APP. When the Auto Tune or WB. O2 CL control is turned on, the ECU will use this AFR as the target. Use APP or R Button to quickly switch the AFR Target 1~3.

2.2 Spark

a、 Spark Angle

Ignition timing with corresponding throttle body position (TPS) and engine speed (RPM).
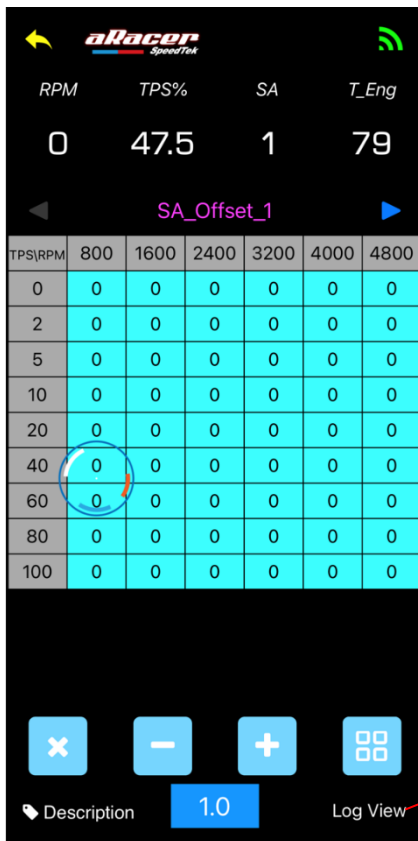
Calibration

The value 0 crank angle (CA) is the TDC of compression stroke. Positive (+) value means timing advance, negative (-) value means timing retard.

When calibrating on dynamometer, you can increase or decrease 2 degrees as a step to find the best performance of engine.

> **Press this button to quickly open the Log View, which is convenient for users to compare the adjusted values with the Log data.**

b、 BackFire

Open Throttle BackFire

When Open Throttle BackFire switch turned on, engine will make backfire at the setting RPM.
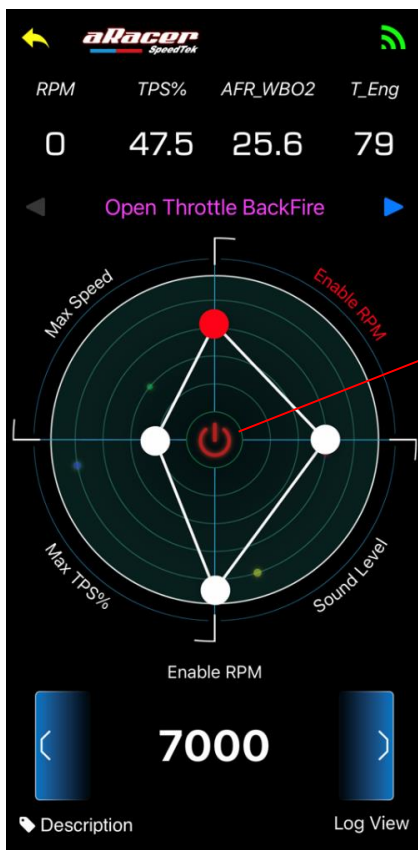
> Open Throttle BackFire switch

Calibration

Sound Level

Level 1 is quietest, and level 9 is loudest. If level is too large, backfire will be difficult to happen according to the engine settings.

Enable RPM

When the engine RPM is over the Enable RPM, backfire will start to occur.

Max TPS%

When TPS% is more than Max TPS%, open throttle backfire will be turned off.

Max Speed

When speed is more than Max Speed, open throttle backfire will be turned off.

Turn on open throttle backfire

Click APP open throttle backfire switch. If the button lights up, the function is turned on.

Turn off open throttle backfire

Click APP open throttle backfire switch. If the button lights dim, the function is turned off.

Close Throttle BackFire

When BackFire Close Throttle switch turned on, engine will make back fire when throttle closed after acceleration.

Close Throttle BackFire switch

Calibration
Sound Level

Level 1 is quietest, and level 9 is loudest. If level is too large, backfire will be difficult to happen according to the engine settings.

Sensitivity Level

If the backfire is difficult to occur, the tuner can set different sensitivity level, and make the backfire more easily to occur.

Duration Level

This function adjusts the duration of backfire, and when the time is over, it returns to the normal fuel supply mode.
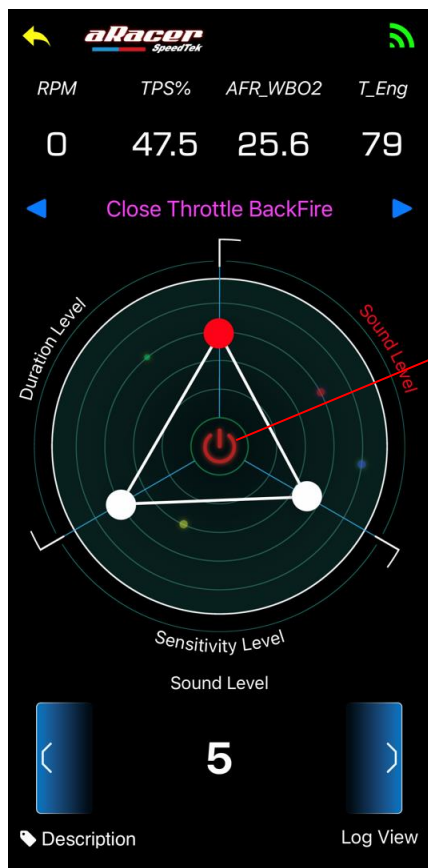
Turn on close throttle backfire

Click APP close throttle backfire switch. If the button lights up, the function is turned on.

Turn off close throttle backfire

Click APP close throttle backfire switch. If the button lights dim, the function is turned off.

Idle Lope

When Idle Lope switch turned on, engine idle sound style can be adjusted.

Idle Lope Switch
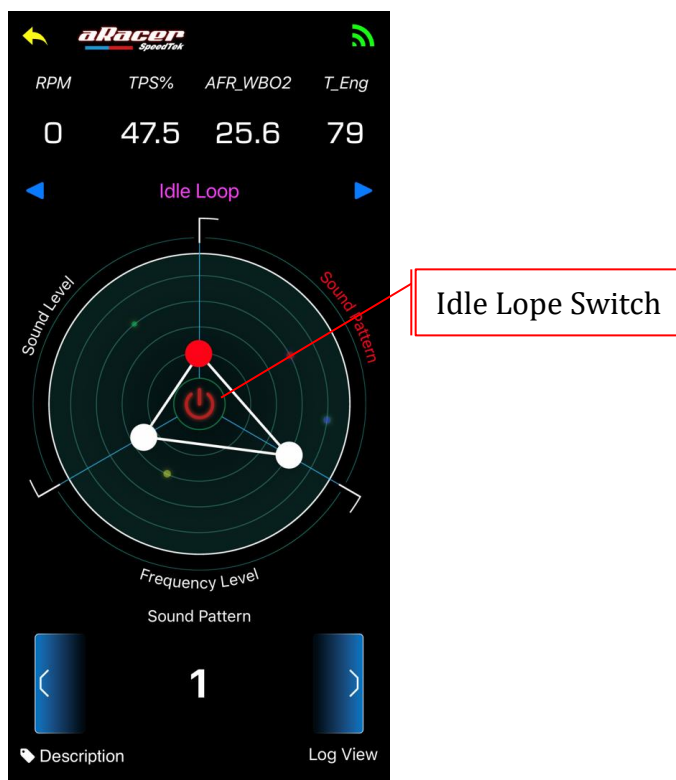
⚠️ Idle lope function will be delayed 10sec after starting the engine.

Calibration

Sound Pattern

Select different idle style pattern.

Frequency Level

Set the idle RPM frequency. Level 1 is slowest, and level9 is fastest.

Sound Level

Set idle lope sound level, and RPM drop rate. If the level is too high, engine will stall easily.

Turn on the Idle lope
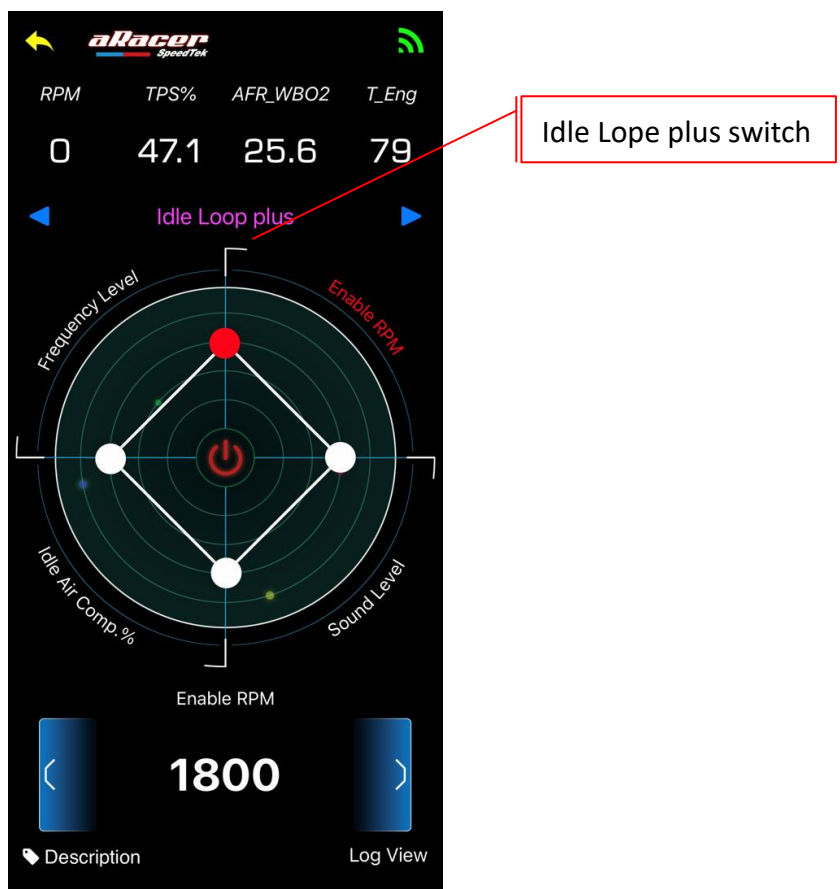
Click APP idle lope switch. If the button lights up, the function is turned on.

Turn off the Idle lope

Click APP idle lope switch. If the button lights dim, the function is turned off.

Idle Lope Plus

When Idle Lope plus switch turned on, engine idle sound style can be adjusted with backfire.

Idle Lope plus switch

⚠️ Idle lope plus function will be delayed 10sec after starting the engine.

Calibration

Enable RPM

When the engine RPM is over the Enable RPM, idle lope plus will start to work.

Sound Level

Level 1 is quietest, and level 9 is loudest. If level is more, backfire sound will be more loudly.

Frequency Level

Set the idle RPM frequency. Level 1 is slowest, and level9 is fastest.

MaxTPS%

When TPS% is more than Max TPS%, idle lope plus will be turned off.

Max Speed

When speed is more than Max Speed, idle lope plus will be turned off.

Idle Air Comp.

If the bike is equipped with ISC, Increase the ISC% will make backfire more loudly.

Turn on the Idle lope plus

Click APP idle lope plus switch. If the button lights up, the function is turned on.

Turn off the Idle lope plus

Click APP idle lope plus switch. If the button lights dim, the function is turned off.

2.3 Engine

a、 Idle RPM

The target idle RPM setting will be based on the ECU preset target idle RPM plus this parameter. 0 is the preset idle RPM, +100 represents 100 revolutions more than the preset RPM, -100 represents the preset RPM minus 100 revolutions.
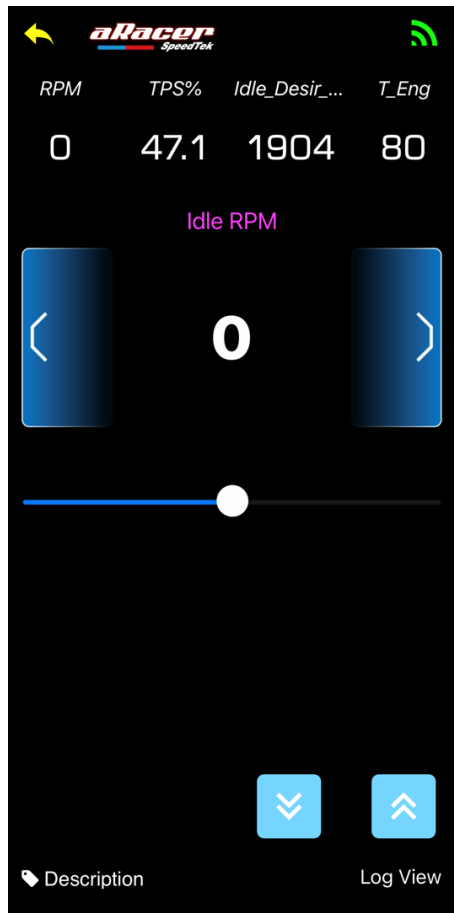
⚠️ If the idle RPM is too low, it may cause the idling speed to be unstable or difficult to start. If the idle RPM is too high, it may cause the phenomenon of high Idle.

b、 Idle Adj.

Idle adjustment is setting the bypass air of throttle. Usually, we adjust the idle bypass screw, or the throttle stop screw.

When refitting an enlarged cylinder or a high-angle camshaft, the idle air volume is prone to be insufficient. The user can slightly open the accelerator so that the engine can idle, and then slowly release the accelerator. Vehicles equipped with an idle motor can release the ISC air Increase the amount, and then adjust the idle speed screw to make the indicator return to the green area.

- For bikes equipped with an idle speed motor, it is recommended to adjust the indicator to the green area.
- For models without idle speed motors, adjust the actual idle rpm to be close to the target rpm.

Calibration

Adjust the idle bypass screw to make the engine rpm close to idle desired rpm. If the bike is equipped the ISC, adjust the idle bypass screw to make ISC% in the green area. Tighten the screw, and the ISC% will increase. Loose the screw, and ISC% will decrease.

c、 RPM Limit

Set engine RPM limiter. If RPM is higher than the limiter, fuel will be cut off.
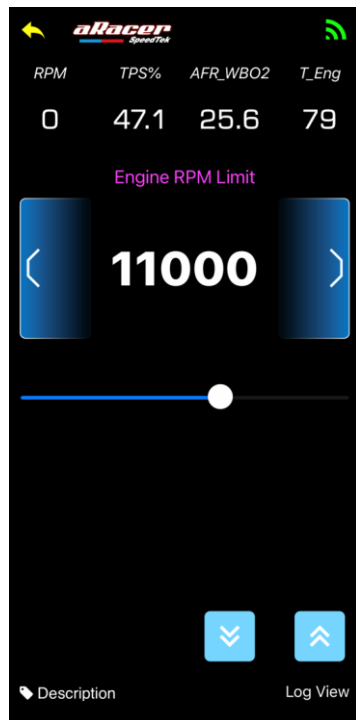
d、 VVA

RPM threshold for VVA control. When RPM is higher than the threshold and VVA is on.
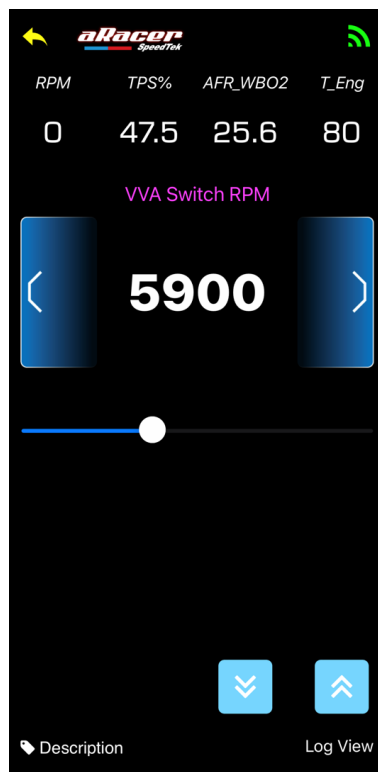
e、Dec. Fuel Cut

Fuel cut when deceleration could improve fuel consumption, back fire and have more engine brake. No fuel cut when deceleration could improve throttle response and have smooth engine brake.

Calibration

ON→ Fuel cut when deceleration.

OFF→ No fuel cut when deceleration.

f、 Auto Tune

AT status

AutoTune Switch

AF1/2 Module status

Engine Temp. status

Malf status

AFR result

Fuel adjust result

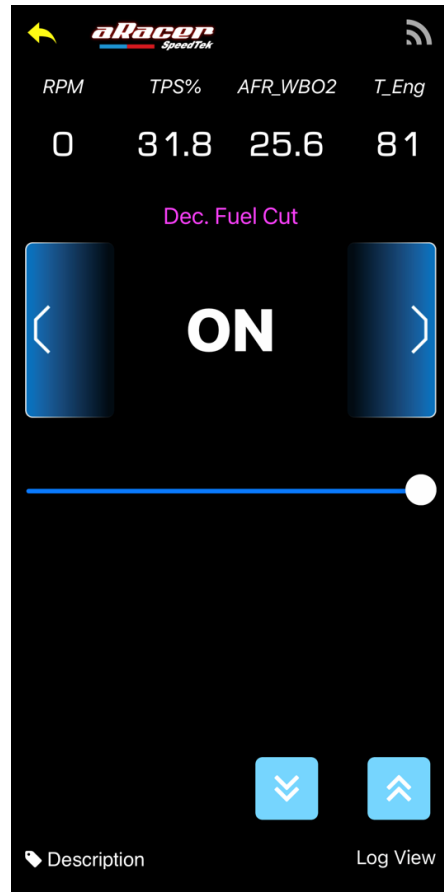AutoTune processes full range internal fuel map correction to fit target AFR automatically with AF module (wideband AFR module) .

Auto Tune can be enabled with the following condition:

1. AF module ready and works well

2. T_Eng = 60~130℃

3. Without any malfunction

System checks the enable conditions and then makes the state to be "AT Running" to correct the fuel amount and then save the results into the ECU internal memory.

g、WB O2 CL
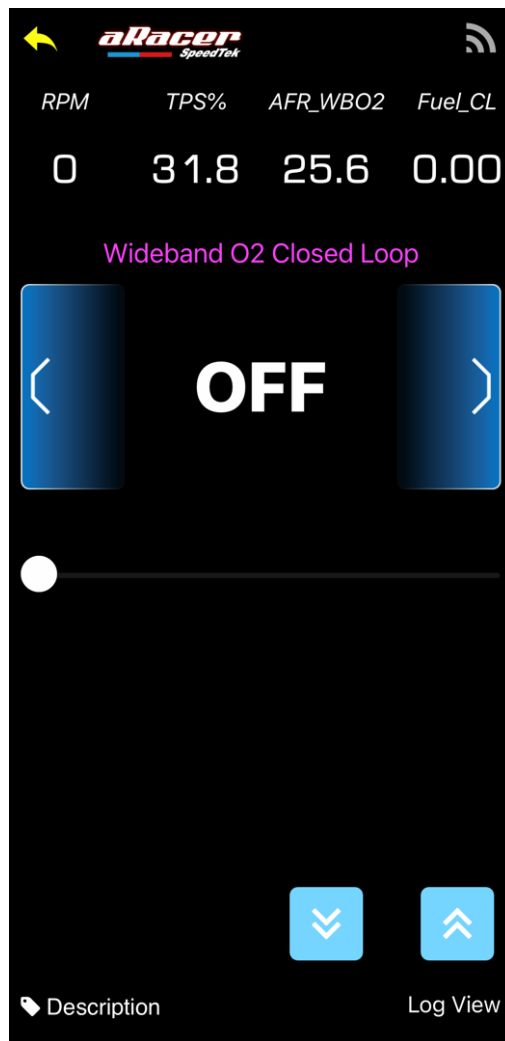
aRacer ECU can work with AF1/2 module (wideband AFR module) for wideband AFR closed loop. (WB O2 Closed loop corrects fuel amount more quickly than AutoTune, but the results will not memory in the ECU.

h、NB O2 CL
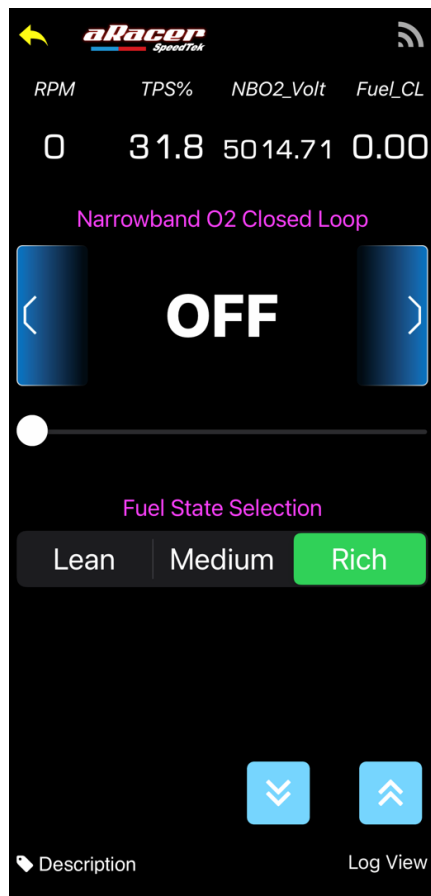
The function that corrects the fuel amount according to the signal of stock narrow band O2 sensor.

When the function is acting, the parameter "Fuel_CL" will fluctuate.

The A/F state can be selected:

Lean(Like stock ECU)___Medium___Rich

The function stores the fuel correction amount in the memory. User can refresh the ECU by QB to reset and clean the memory.

2.4 Vehicle

a、Speed Gain
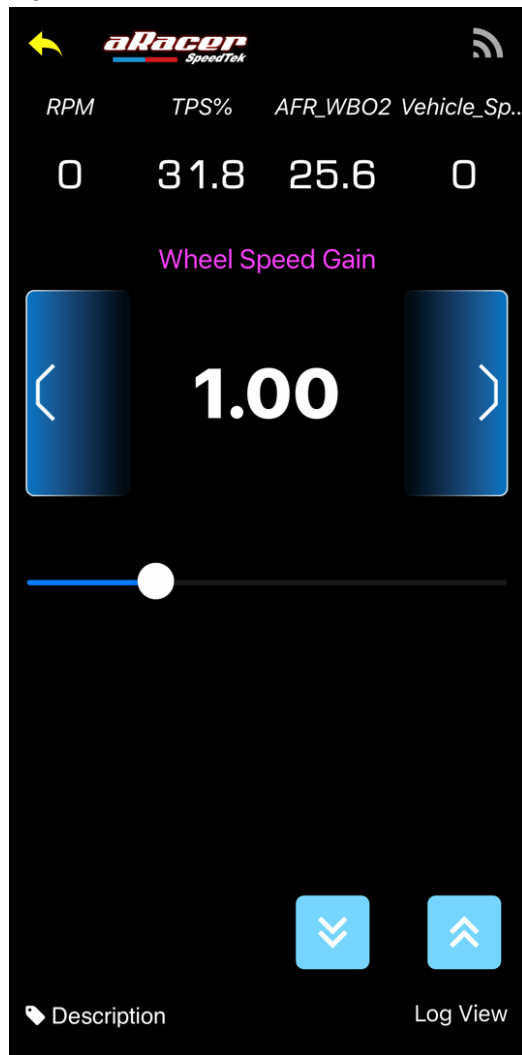
Vehicle Speed Gain(0~4), 1 is the default setting, 1.1 is 10% vehicle speed increase, 0.9 is 10% vehicle speed decrease.

b、Fan
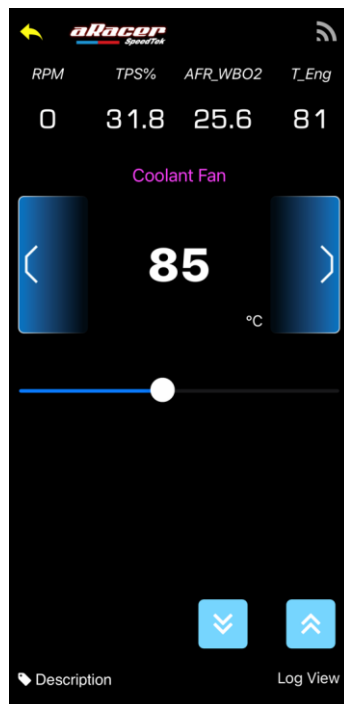
Coolant fan control. When the Engine temperature is over the threshold, ECU will turn on the fan. When the temperature is below 5℃ of the setting value, fan will be turned off.

c、 Launch Control

After starting the launch control, when the throttle is opened, the RPM can be limited to the set value. When the release condition is satisfied, the RPM limit will be released.

Calibration

Launch Control Mode

Select CVT or MT mode. If use CVT mode, rpm limit will be released when TPS% > 85%. If use MT mode, rpm will be released when rpm is dropped to Limit RPM – Drop RPM or speed more than End Speed, RPM limit will be released.

Limit RPM

Launch control limit rpm.

Drop RPM

When rpm is lower than Limit RPM – Drop RPM, rpm limit will be released.

End Speed

When speed is more than End Speed, rpm limit will be released.

Turn on Launch Control

a. Click APP meter LC button. When the LC button lights up, the function is turned on.

b. Long click(hold 300ms) red race button.

c. Long click R Button up button.

Turn off Launch Control

a. TPS% < 5% after RPM limit.

b. Speed is more than End Speed.

c. RPM is lower than Limit RPM – Drop RPM

d. Click APP meter LC button.

e. Click red race button.

d、Pit Limit
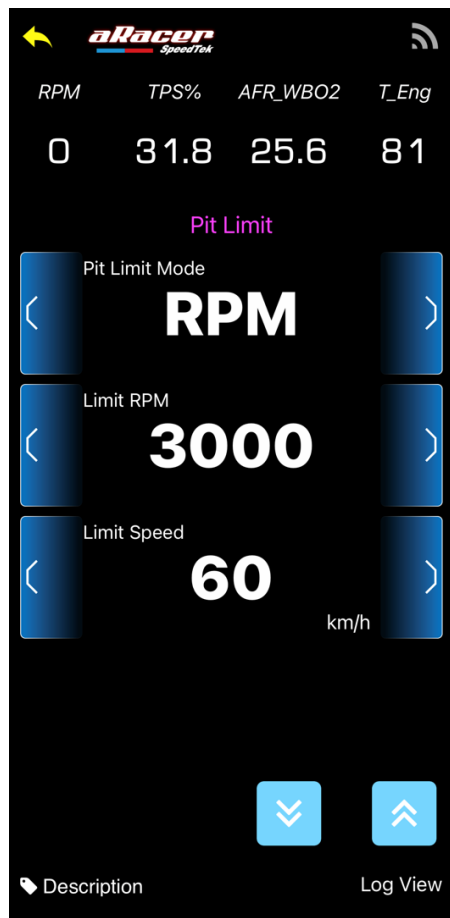
When turn on the Pit Limit function, speed or rpm will be limited to set value.

⚠️ Pit Limit function only works in Neutral, 1st and 2nd gear.

Calibration

Pit Limit Mode

Select RPM or Speed mode. When use RPM mode, if RPM is more than setting value, the engine power will be cut. If select the speed mode, engine power will be cut at setting speed.

Limit RPM

Set the limit RPM at Pit limit function.

Limit Speed

Set the limit Speed at Pit limit function.

Turn on Pit Limit function

a. Click the APP meter PIT button. When the button lights up, the function is turned on.

b. Long click (hold 300ms) the blue race button.

Turn off Pit Limit function

a. Click the race switch blue button.

b. Click the APP meter PIT button.

c.

e、TPS Learn
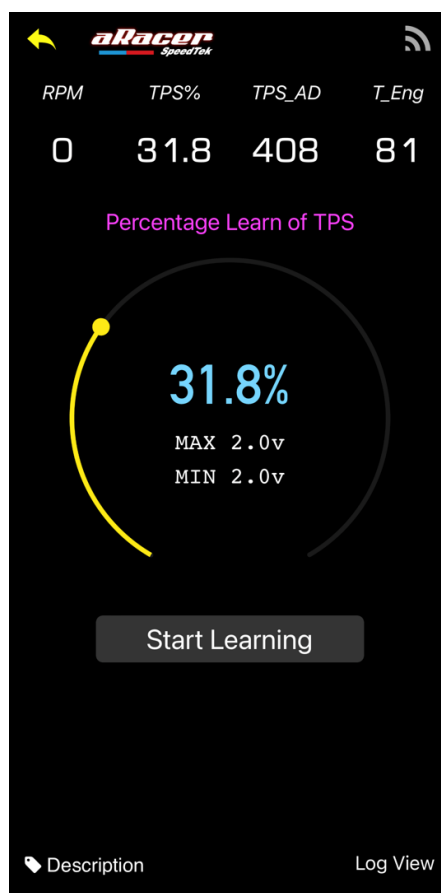
If wide open throttle TPS% signal < 97%, click this function to calibrate TPS% to 100%.

⚠️ If TPS signal is not the same with throttle open percent, the volume of injection will be incorrect.

f、 R. Button

The user can set the combination of ON, OFF or level of various functions in MAP1~3.

	![MAP1]	![MAP2]	![MAP3]
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

Ex : When MAP3 is selected, the function will be

defined in the yellow box

Calibration parameters

AFR_Target

To set the target AFR, for example, press and hold MAP1, the system will jump out of the menu, and the user can select the AFR_Target_1~3.

	![MAP1]	![MAP2]	![MAP3]
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

AFR (MAP)

Target_AFR_1

Target_AFR_2

Target_AFR_3
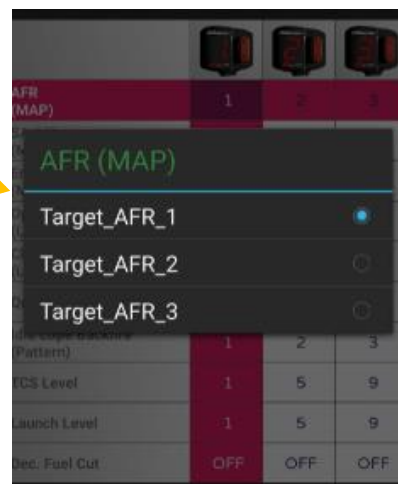
SA_Offset

Ignition timing compensation, for example, press and hold MAP2, the system will jump out of the menu, and the user can select the SA_Offset 1~3.

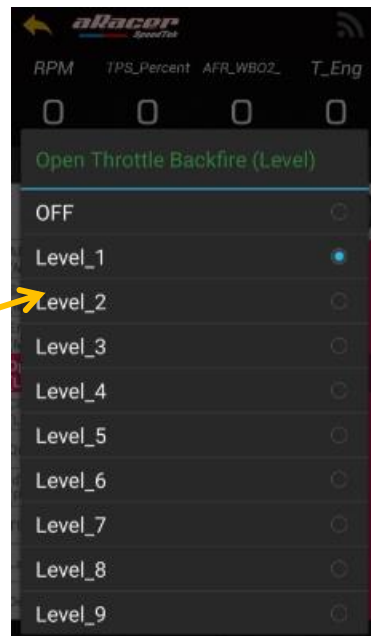|	1	2	3
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

Open Throttle Backfire

Open Throttle Backfire setting, for example, press and hold MAP3, the system will jump out of the menu, and the user can select the backfire sound Level (ON/OFF and Level_1~9).

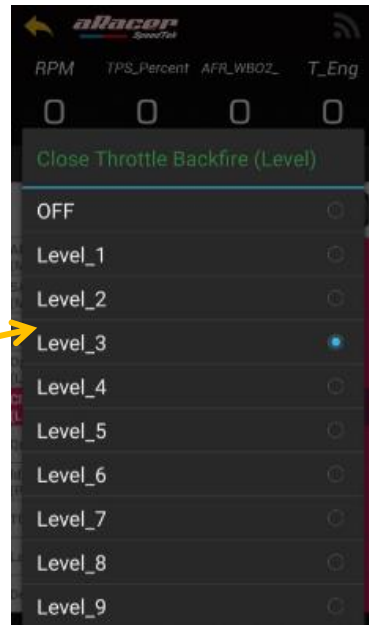|	1	2	3
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

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Close Throttle Backfire

Close Throttle Backfire setting, for example, press and hold MAP3, the system will jump out of the menu, and the user can select the backfire sound Level (ON/OFF and Level_1~9).
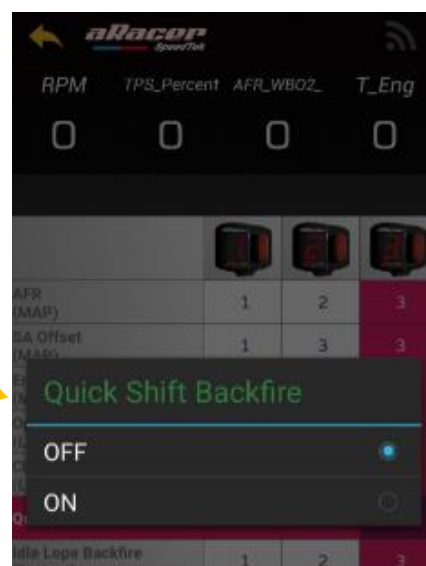

Quick Shift Backfire

Quick Shift Backfire setting, for example, press and hold MAP3, the system will jump out of the menu. The user can select whether to turn on or off the backfire function when the quick shift is activated.
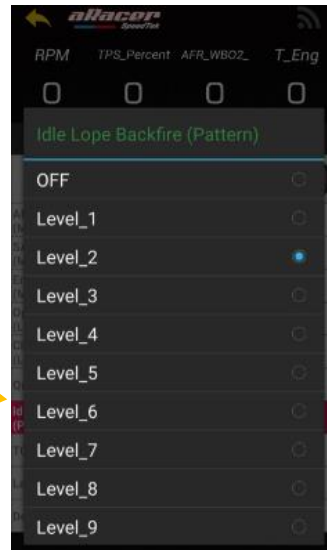

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Idle Lope Backfire

Idle Lope Backfire setting, for example, press and hold MAP3, the system will jump out of the menu. The user can select the sound pattern (ON/OFF and Patten_1~3).

	1	2	3
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

TCS Level

Traction Control System Level setting, for example, press and hold MAP3, the system will jump out of the menu. The user can select the TCS Level (ON/OFF and Level_1~9).

	1	2	3
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

TCS Level_1-3→ Power retard Low-High

Launch Level

Launch Level setting, for example, press and hold MAP3, the system will jump out of the menu. The user can select the Launch Level (ON/OFF and Level_1~3).
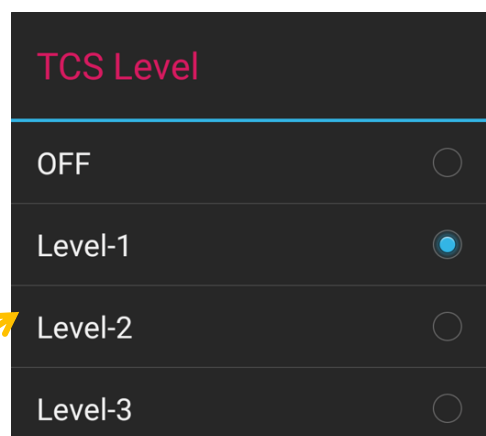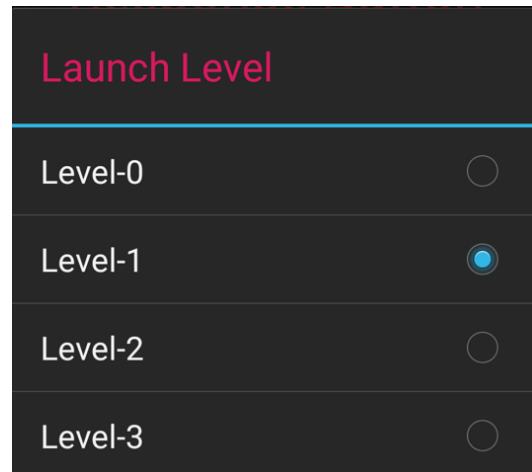
	1	2	3
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

Launch Level

- Level-0 ◯
- Level-1 ◉
- Level-2 ◯
- Level-3 ◯

Level_1-3→Power recovery after the launch (high-Low).

Dec Fuel Cut

Deceleration Fuel Cut setting, for example, press and hold MAP3, the system will jump out of the menu. The user can select whether to turn on or off the function.

	1	2	3
AFR Target (MAP)	1	2	3
SA Offset (MAP)	1	2	3
Open Throttle Backfire (Level)	OFF	OFF	OFF
Close Throttle Backfire (Level)	OFF	OFF	OFF
Quick Shift Backfire	OFF	OFF	OFF
Idle Loop Backfire (Pattern)	OFF	OFF	OFF
TCS Level	1	1	3
Launch Level	1	2	3
Dec. Fuel Cut	ON	ON	ON

Dec. Fuel Cut

- OFF ◯
- ON ◉
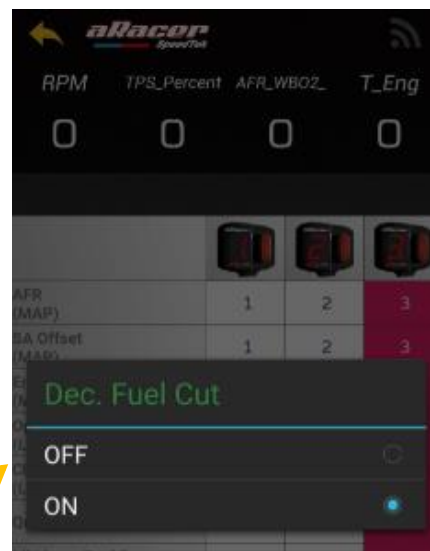
"ON" means no fuel injection when deceleration.

"OFF" means fuel injection when deceleration.

g、Traction Control
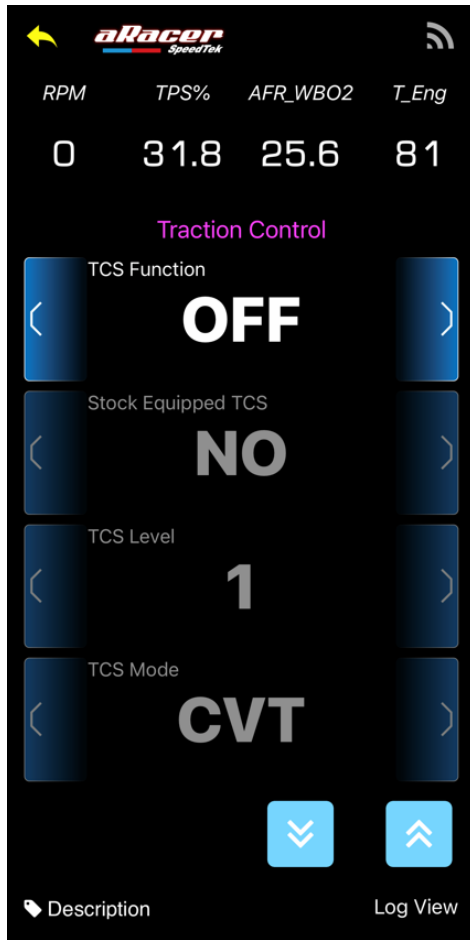
Traction control system is controlled by wheel speed or engine information. If TCS according to the wheel speed, when the rear wheel is sliding over the threshold, ECU will reduce the engine torque to control the percentage of slide and maintain the maximum acceleration.

If the bike is not stock equipped the TCS, ecu will control the engine torque to reduce the slide according to the engine information.

⚠ TCS controlled by engine information is to reduce the rise of slip, and it is impossible to avoid wheel slip.

Calibration parameters

TCS Function

ON：Turn on TCS function.

OFF：Turn off TCS function.

Stock Equipped TCS

YES：TCS is controlled by speed sensors.
NO：Turn off TCS function.

TCS Level

TCS reduces more torque if the level is higher.

TCS Mode

When Traction control system is controlled by engine information**(Stock Equipped TCS**= NO), TCS Mode can be CVT or MT.**

Turn on the TCS

1. Click APP monitor TC button. If the button lights up, the function is turned on.
2. Set TCS Function = ON at APP Traction Control page.

Turn off the TCS

1. Click APP monitor TC button. If the button lights dim, the function is turned off.
2. Set TCS Function = OFF at APP Traction Control page.

2.5 Quick Shift

a、QS Wizard

According to the APP step guide, set the relevant setting value of quick shift.

b、QS Settings

Set up the adjustable function of quick shift, users can quickly switch related settings, if you need guided settings, please use the QS wizard.

Calibration parameters

Quick Shift

Quick Shift function is on or off.

Power Cut By

Power cut by fuel or spark.

Shift Up Direction

Shift up direction is compression or tension.

Shift Down (ETC Only)

For bike with electronic throttle, the function of downshifting can be selected.

Tension Threshold

The trigger threshold for quick shift, trigger when QuickShift_AD_Raw < this setting value.

Compression Threshold

The trigger threshold for quick shift, trigger when QuickShift_AD_Raw > this setting value.

c、QS Cut Time

When the quick shift is activated, the power cut-off time compensation value is at each rpm. The power cut-off time can be extended at low rpm to reduce the feeling of frustration when shifting gears. When the rpm is high, the power cut-off time can be shortened for better acceleration.

Calibration

When testing, you can first confirm whether the default value has met the requirements, and the default value can be known by the variable QuickShiftCutTime.

The adjustment parameter is the compensation value of quick shift cut time, which is compensated by addition and subtraction on the preset value, and the adjustment value is -250~250ms.

3. Malf. code

When connected to the ECU, after opening the app malf. code page, aRacer X Tune will display the malf. codes currently occurring here. Some malf. codes can only be detected when the engine is running.

After the key is turned off, all malf. codes will be automatically cleared. If the malf. code still appears, it means that the fault has not been eliminated.
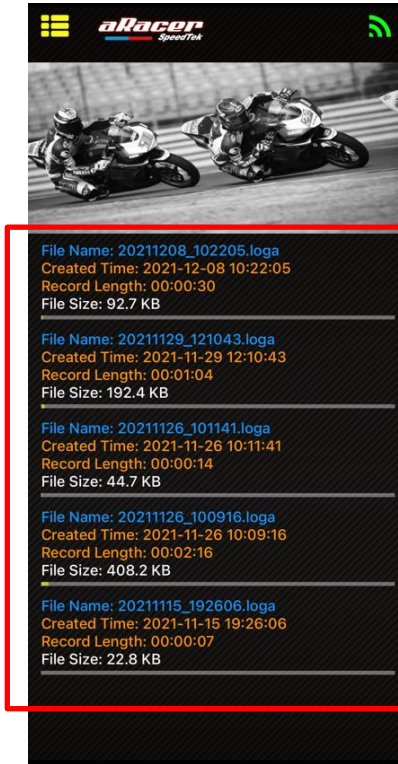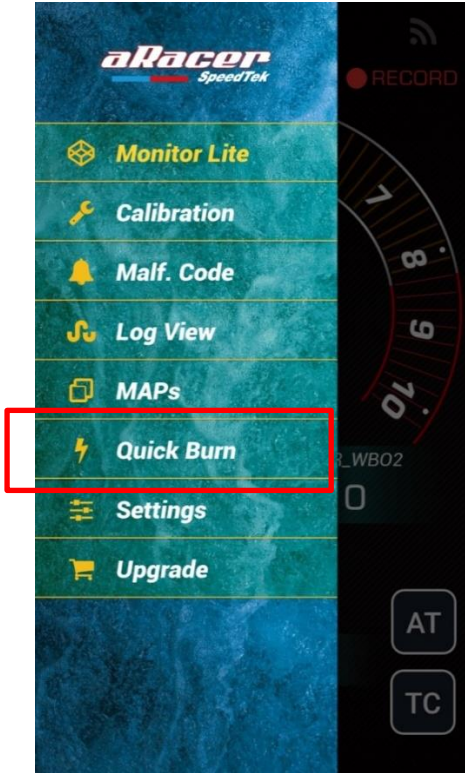
4. Log View

After connecting with the ECU, press the RECORD button on the screen of the instrument to start recording the ECU LOG, and press the switch again to automatically save the file.

Open the log view function, select the recorded file to open the analysis tool.

File Name: 20211208_102205.loga
Created Time: 2021-12-08 10:22:05
Record Length: 00:00:30
File Size: 92.7 KB

File Name: 20211129_121043.loga
Created Time: 2021-11-29 12:10:43
Record Length: 00:01:04
File Size: 192.4 KB

File Name: 20211126_101141.loga
Created Time: 2021-11-26 10:11:41
Record Length: 00:00:14
File Size: 44.7 KB

File Name: 20211126_100916.loga
Created Time: 2021-11-26 10:09:16
Record Length: 00:02:16
File Size: 408.2 KB

File Name: 20211115_192606.loga
Created Time: 2021-11-15 19:26:06
Record Length: 00:00:07
File Size: 22.8 KB

Long press the position of the monitored variable to enter the variable selection page and change the variable displayed in the chart. If you purchase the APP function, you can display two parameters in the same column.
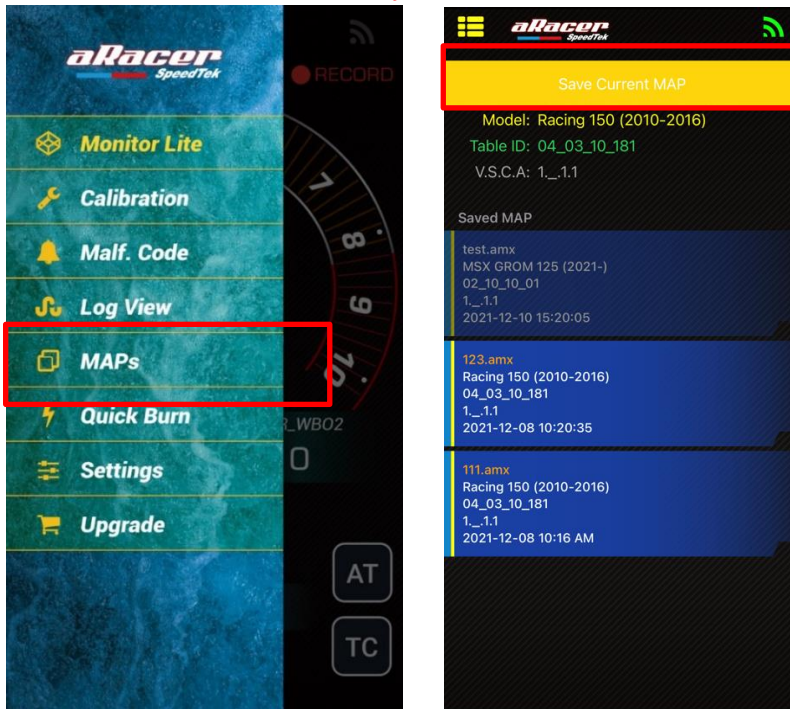
Long press to select variables

Open log file
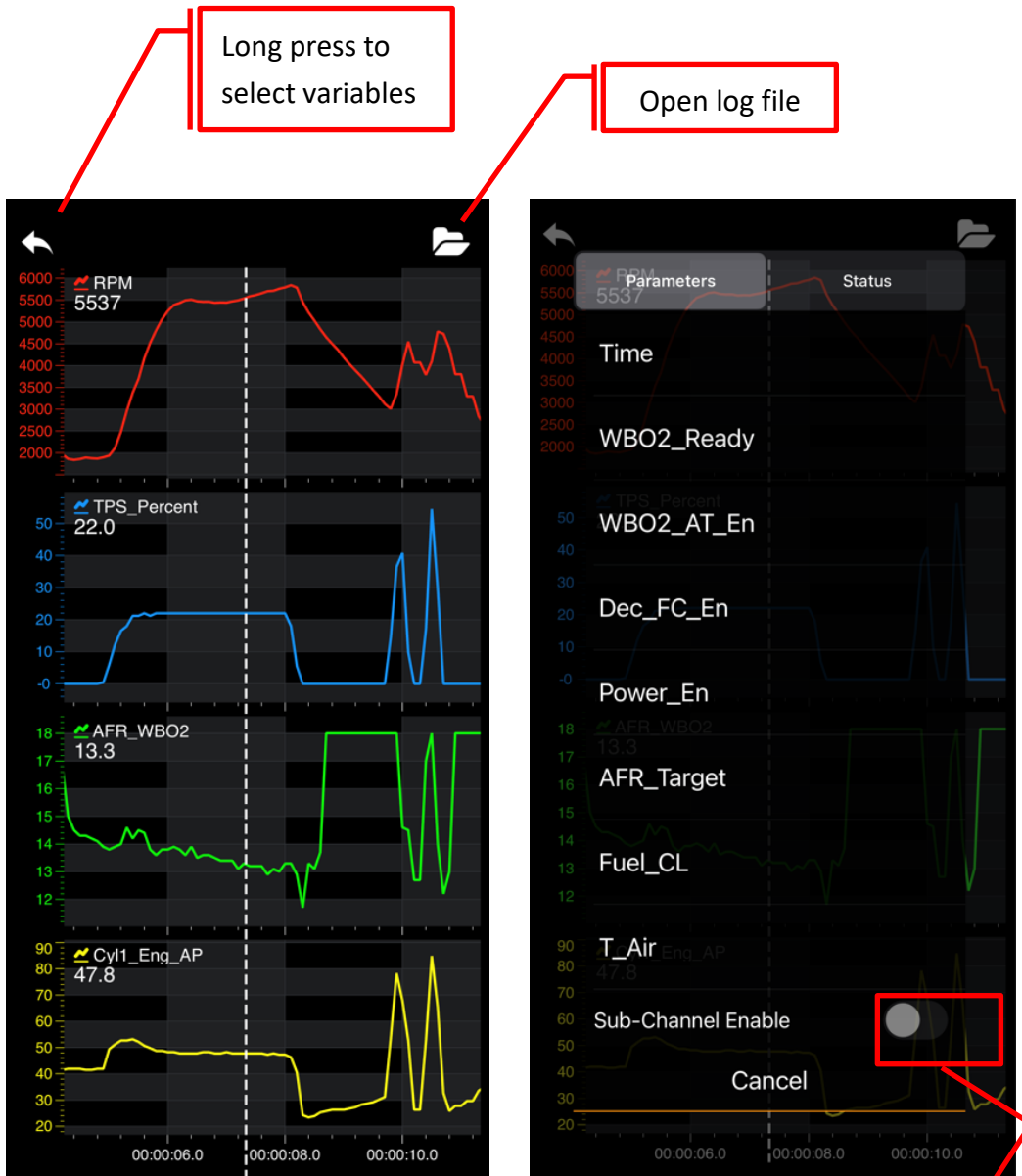
After purchasing the function, two variables can be opened at the same time in the same display chart.
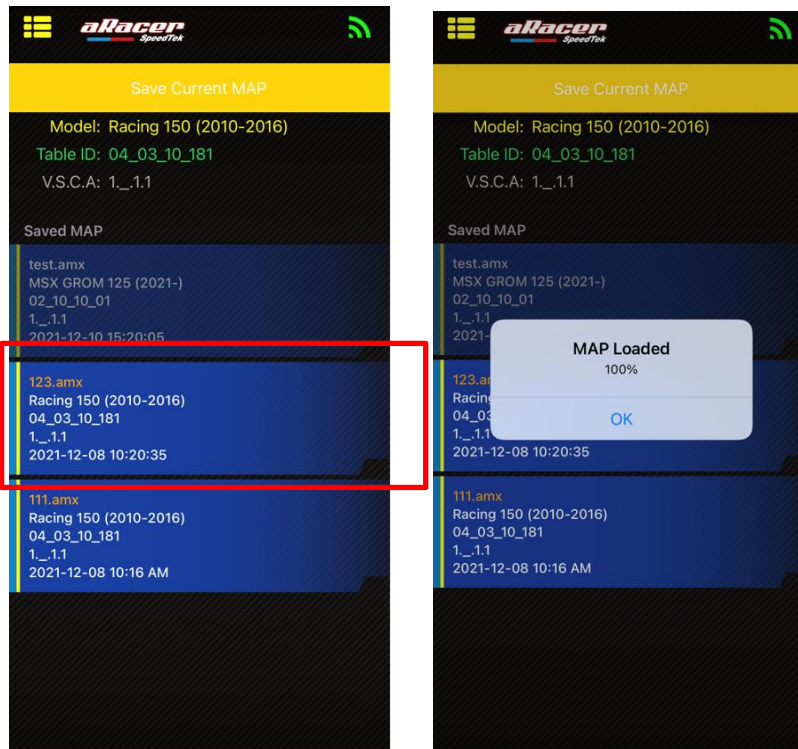
5. Maps

When the ECU is connected, click the Save Current MAP to save the current map.

⚠️Map can be saved only when the ECU is connected.
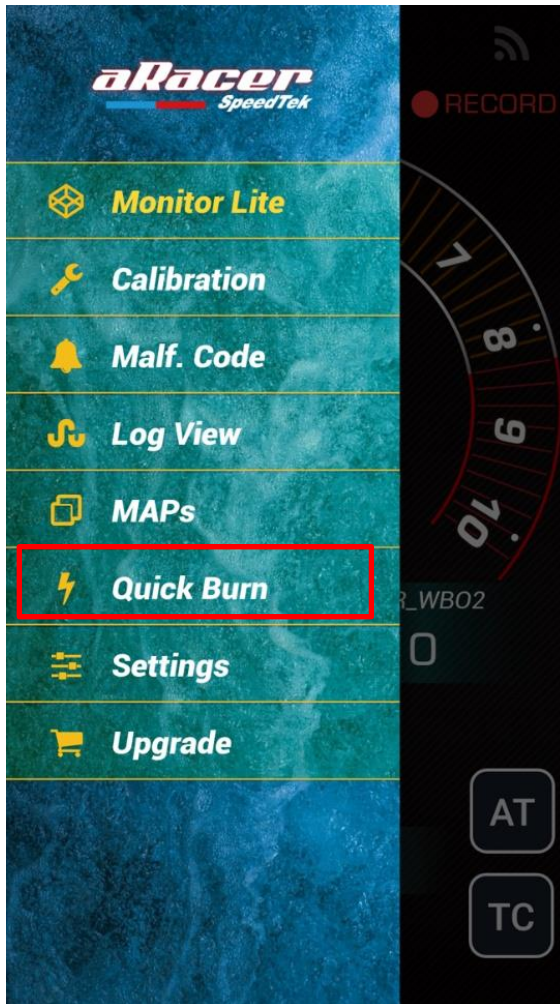

When the ECU is connected, click the map to load.

⚠️ The values of the parameters of unpurchased functions will not be updated to the ECU!
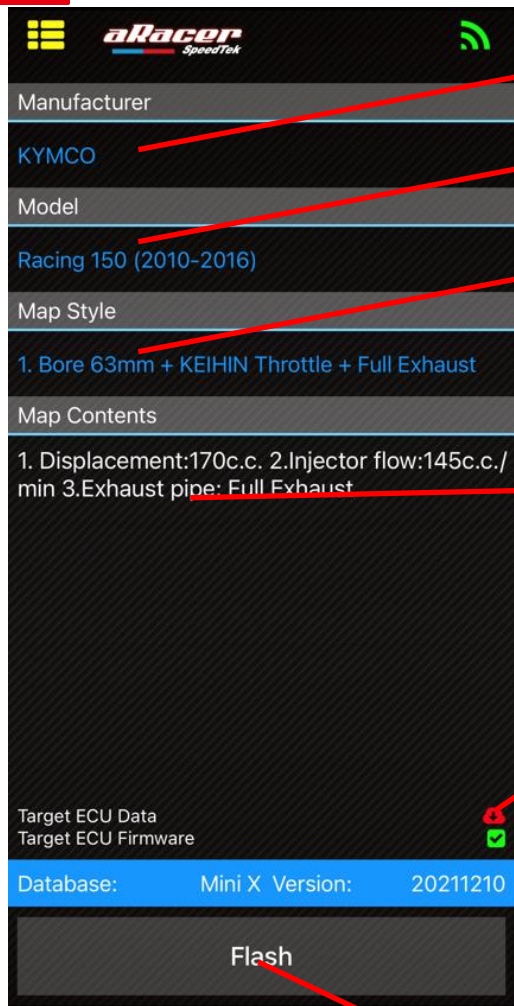
6. Quick Burn

aRacer Quick Burn is cloud database that collects the preset adjustment values for each vehicle type, and the user can select the most suitable file for burning.

Manufacturer

KYMCO

Model

Racing 150 (2010-2016)

Map Style

1. Bore 63mm + KEIHIN Throttle + Full Exhaust

Map Contents

1. Displacement:170c.c. 2.Injector flow:145c.c./ min 3.Exhaust pipe: Full Exhaust

Target ECU Data
Target ECU Firmware

Database: Mini X Version: 20211210

Flash

Select manufacture

Select vehicle model
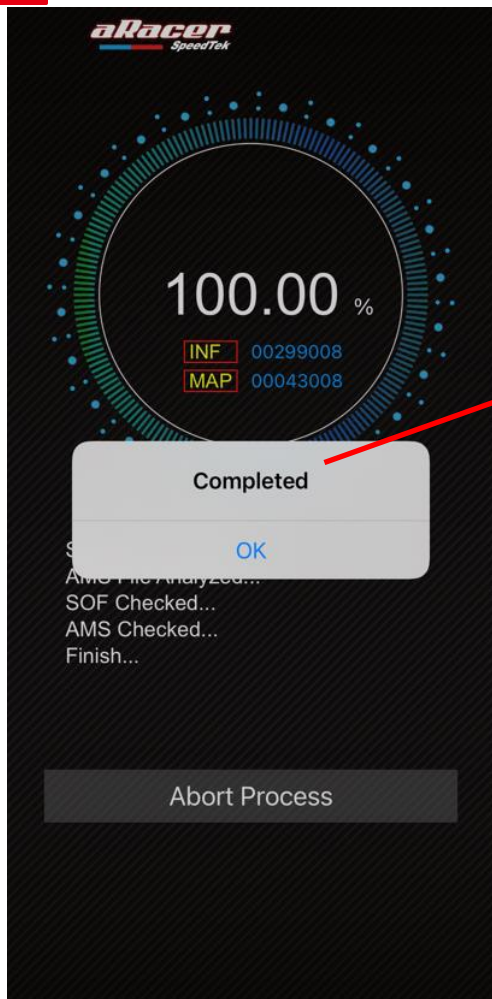
Select the map type

Information of the MAP

The connection status of Quick Burn，**Red** is not yet downloaded, **Green** is downloaded.
The Android system must be connected to the Internet first, click this red cloud button, the downloaded file will turn green and then connect to the ECU and burn
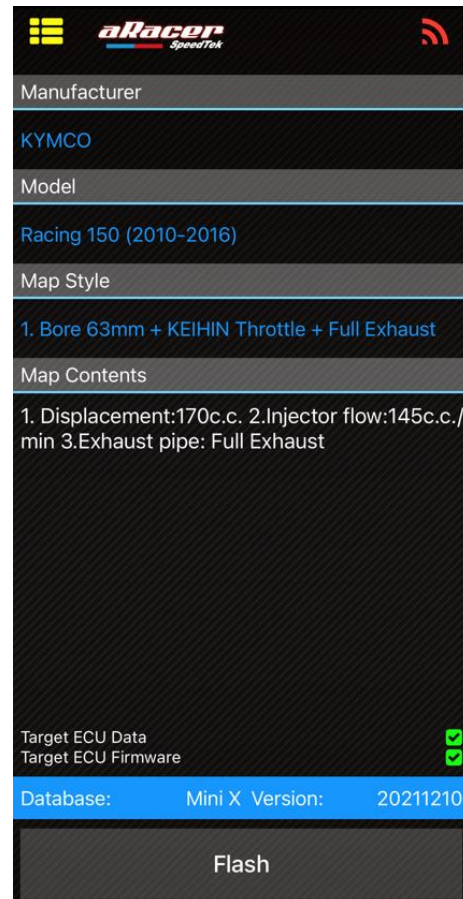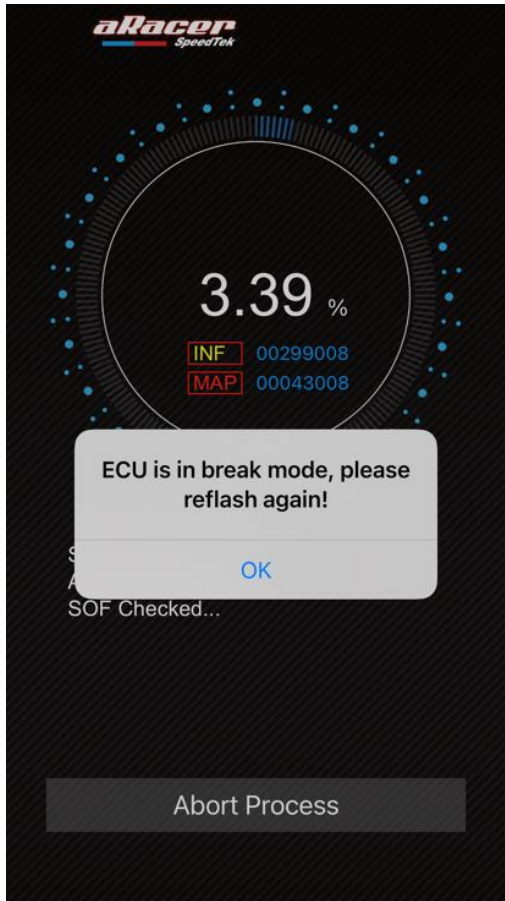
Burn the selected file to ECU

Burning is complete
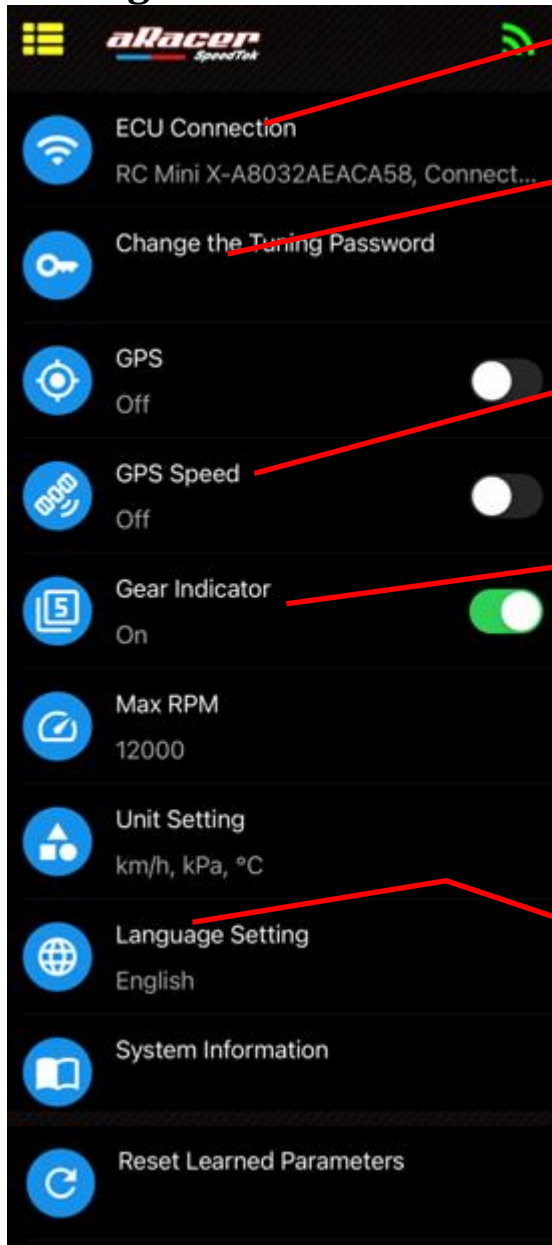
If QuickBurn burning is interrupted, turn off the key power of the vehicle and reopen the APP connection. After the connection, the ECU burning process interruption message will pop up. After clicking OK, the QuickBurn window will appear. Re-click programming to burn the ECU again .

7. Settings

ECU WiFi connection setting

ECU tuning password. When the password does not match, only instrument monitoring and QB burning can be performed

Select the monitoring instrument to indicate GPS speed or original vehicle speed

Whether the gear is displayed on the meter

Display software information and function upgrade status of the ECU.

The system information page, when a problem occurs with the ECU, this page can be used as a reference for the software version.

Frequently Asked Q&A

What to do if the ECU burning process is interrupted?

- Possible reason : The APP screen pops up during the burning process, another APP intervenes, there is an incoming call…
- Solution : Turn off the power of the vehicle, then turn off the aRacer X Tune APP, then turn on the power of the vehicle, and reconnect, then use QuickBurn to burn again.

The ECU connection symbol keeps the orange light?

- Possible reason : There is interference during the WiFi connection, which causes the connection to fail or be bad.
- Solution :
    1. Close the aRacer X Tune APP and connect again.
    2. Turn off then turn on the power of the vehicle and connect it again.

The mobile phone cannot connect to the ECU through the WiFi (hotspot) network?

- Possible reason :   The WiFi or hotspot host is busy.
- Solution :   Turn off the WiFi host or hotspot and turn it on again, and reconnect to the ECU.

First time connection, cannot connect to ECU?

- Possible reason : The name of the connected ECU is incorrect or the WiFi of the mobile phone is not turned on or the WiFi signal is bad
Solution :
    1. Make sure that WiFi is turned on on the phone.
    2. Confirm whether the name of the connected ECU is correct, and whether the WiFi setting of the mobile phone is connected to the correct ECU name.
    3. If you are connecting via a domain or mobile phone hotspot, please confirm whether the WiFi strength & name/password are correct.
    4. Restart the phone and try to connect again following the steps.

The connection is successful, but the connection to the ECU fails next time?

- Possible reason : The phone WiFi automatically connects to other known WiFi points or the phone performance and WiFi strength issues require a longer connection time.
- Solution :
  1. Reconfirm whether WiFi is connected to the ECU through the phone settings again!! The phone WiFi settings are usually automatically connected to the WiFi points that have been memorized in the phone, so after disconnecting from the ECU, the phone will automatically connect to other WiFi networks point! !
  2. After the connection setting is completed successfully, the next time you connect, it usually takes about 10sec to search and connect to the WiFi network according to the performance of different mobile phones. If the Android mobile phone uses a hotspot connection, the time will be longer!
  3. If you are connecting through a WiFi IP domain, please make sure that the WiFi IP domain signal strength is OK.
  4. Restart the phone and try to connect again by the connection steps.

I have successfully connected to the ECU, but I can't connect to the Internet with my mobile phone or PC?

- Possible reason : Android phones cannot access the Internet via 4G/5G after using WiFi to connect to the ECU. You need to use a hotspot or WiFi sharing device to connect & connect to the Internet.
- Solution : You need to use a hotspot or WiFi sharing device to connect & connect to the Internet. Please refer to the connection method of the Android phone upgrade function.

Appendix

Android Function upgrade method 2

Change the ECU factory default WiFi account password setting.

⚠ When an Android phone uses WiFi connection, mobile data cannot be used at the same time. Therefore, the ECU needs to be connected to the phone hotspot, and the phone is connected to the Internet through the 4G/5G network to be able to access the Internet and connect to the ECU at the same time to enable the function.
Because mobile phone A cannot turn on WiFi at the same time when the hotspot is turned on, mobile phone B needs to turn on WiFi to set the connection settings of the ECU.
Please follow the steps below to set:

Wi-Fi   A mobile   B mobile

A mobile：Data adjustment & enable
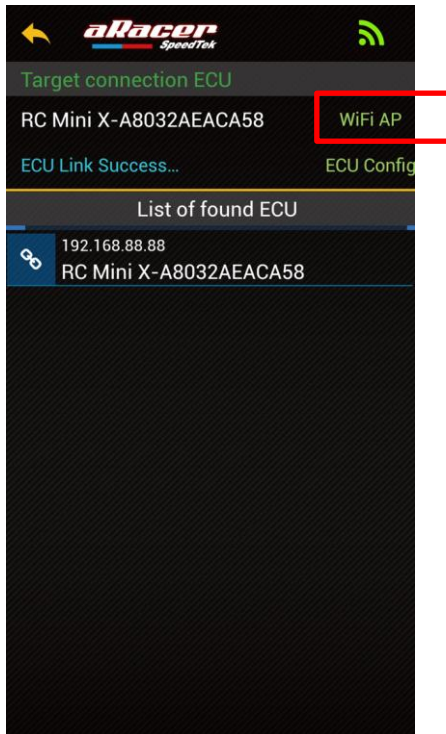
hotspot.

B mobile：Setting up ECU connection &
turning on WiFi.

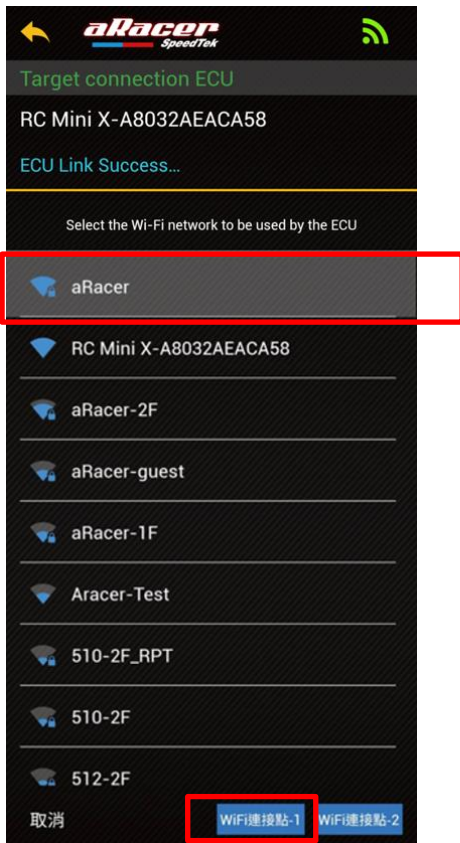Step1: Use mobile phone A to turn on the hotspot, mobile phone B to turn on WiFi to connect to the ECU that needs to be upgraded.
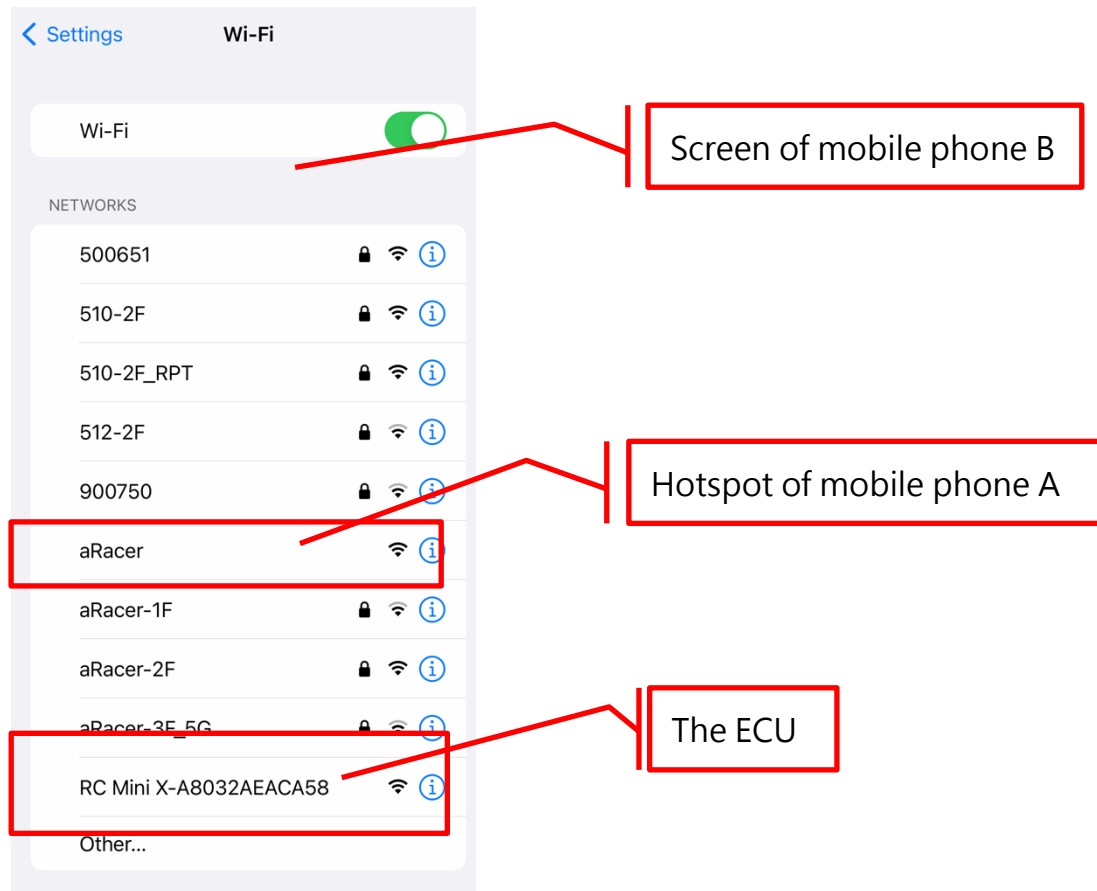
Step2 :Use phone B to open the ECU connection in the settings, and click WiFi settings.

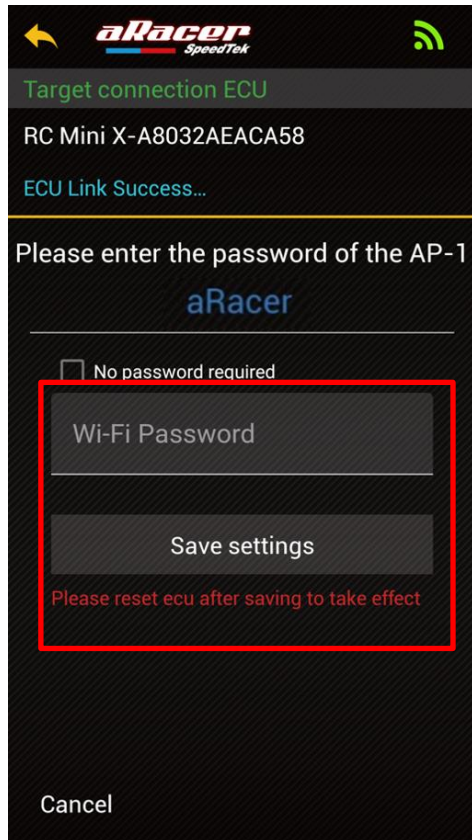Step3: Select A mobile hotspot, and click WiFi connection point-1.

Enter the hotspot password, press to save the setting, turn off the power of the vehicle for ten seconds and then turn it on again. Turn off the WiFi function of B mobile phone.

⚠️ **If the vehicle is not turned off and then turned on, WiFi may not be able to connect.**

⚠️ **If the WiFi of B mobile phone is not turned off, the ECU may automatically connect to the B mobile phone and cannot connect to the A mobile hotspot.**
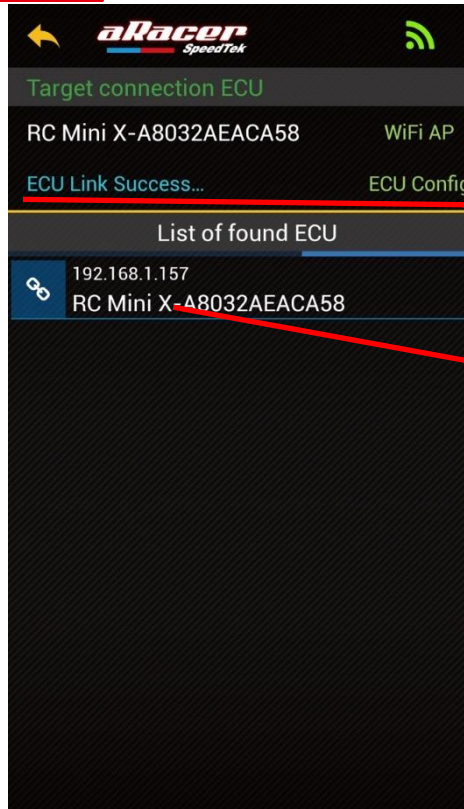
Step4: Turn on the power of the vehicle and confirm that the ECU has been connected to the hot spot of the A mobile phone.

⚠️ If aRacer-ECU does not appear, restart the mobile phone and hotspot, and turn off the vehicle's power for 1 minute, then turn it on again.
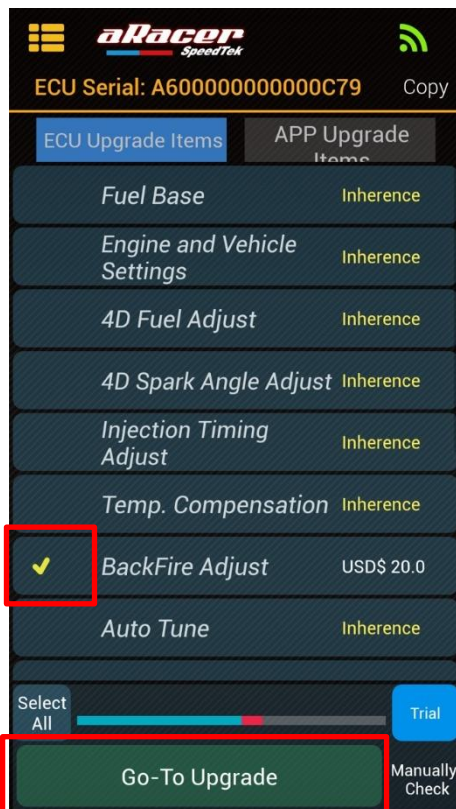
。

A mobile phone opens aRacer X Tune APP, and then opens the ECU connection in the settings.

Confirm that the ECU has been connected successfully

Select the ECU

Step5: Open the upgrade page, select the item that needs to be upgraded, and click to upgrade。

Order Information

*Name

*Cell phone:

*Address

*Email:

Step6: Fill in the invoice information, confirm that the ECU serial number and purchase function items are correct, and then press the payment button.

Fill in invoice information

ECU Serial Number：
A600000000000C79

Order Number：
20211209537603

Product Name	Price
BackFire Adjust(A6_F_7)	600

Swipe amount：600
Total points：1000

Payment method:

◉ Credit Card VISA

☐ I have read and understood aRacer POINTS terms and conditions of use。

Place an order and pay safely

Confirm purchase items

Confirm to pay

Enter your credit card information.

⌂ 🔒 core.newebpay.com/MP 🔲 🔴

信用卡一次付清

◉ 一次付清

信用卡號： VISA

有效月年：

選擇 ▾ / 選擇 ▾ 年

背面末三碼：

背面末三碼

填寫付款人信箱：
Wild5221@gmail.com
Email格式正確。

☐ 請再次確認您的「訂單資訊」及「付

◁ ○ ▢
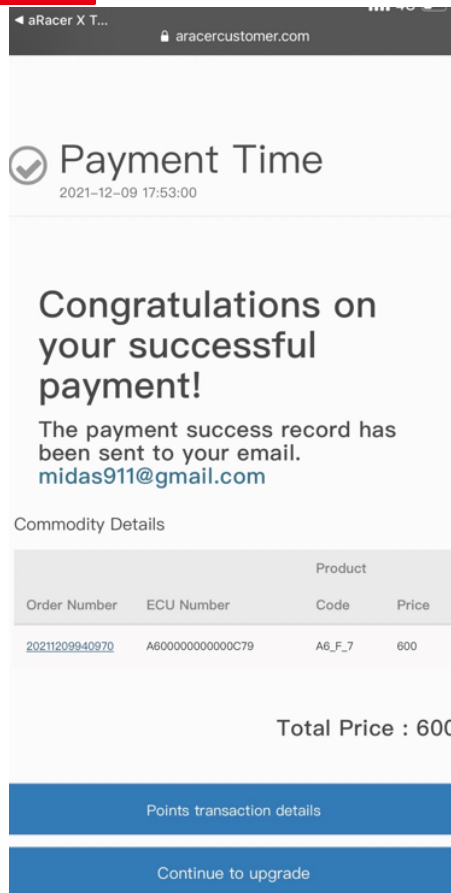
After the payment is successful, the purchased function will be displayed.
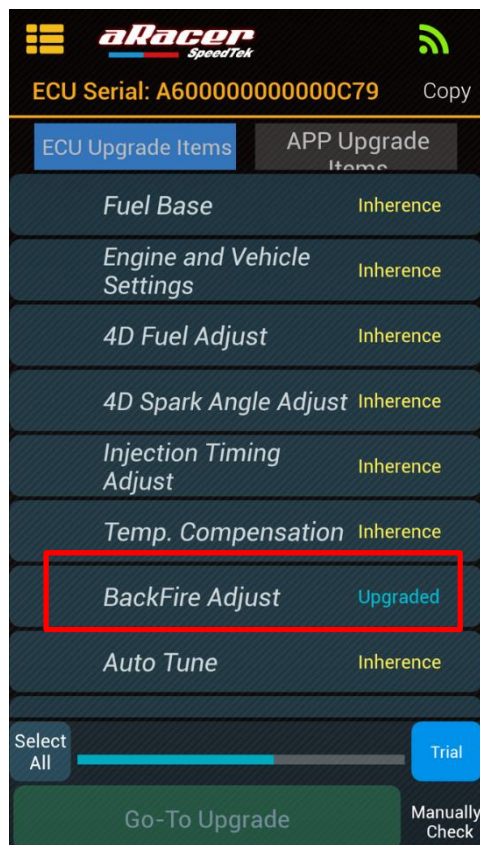
Step7 Back to this APP screen, the purchase item shows that it has been upgraded, indicating that the upgrade has been completed. If the completion window does not pop up, you can click Manual Update to complete the upgrade.

Turn off and turn on the power of the vehicle and reconnect the ECU to use the new functions.