

RR1 WURKS

DIGITAL - 3

APPLICATION USER GUIDE

Thank you for purchasing the R1 WURKS DIGITAL-3. Before using the DIGITAL-3 ESC application, please read the APP Manual and DIGITAL-3 Manual carefully.

R1 WURKS DIGITAL-3 ESC App Basic Operation

Note: To check the status of the ESC/motor in real-time, open the APP on the Smartphone while in receiver range. Stop the motor and press the Live icon to bring up the Live Telemetry Screen.

Note: Because the WiFi connection will automatically turn OFF while the motor is running (except when in Live Mode), exit the Smartphone application before driving to reduce RF interference and heat during operation.

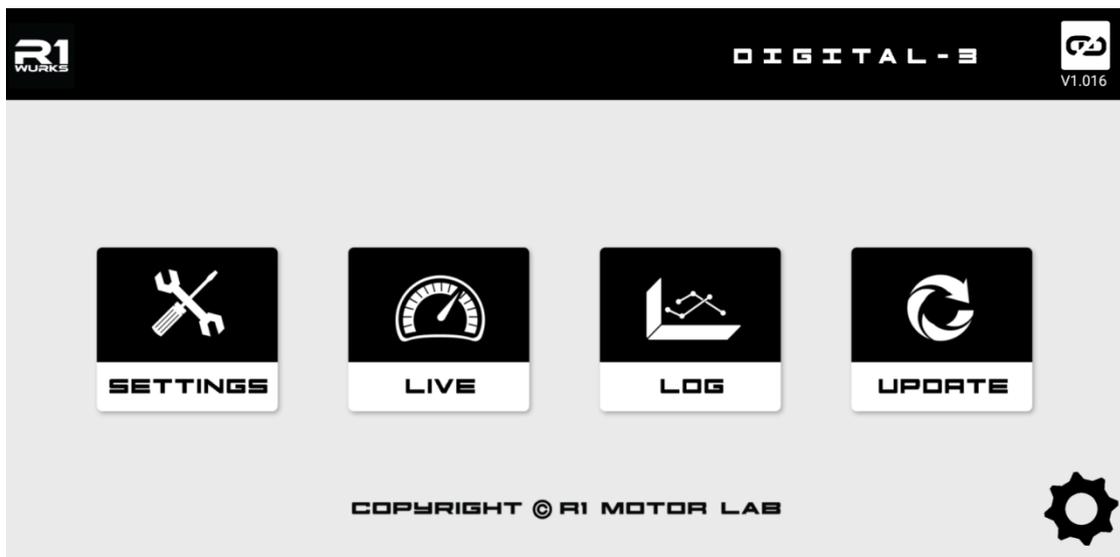
Note: Always stop the motor before using the Settings and Log menus.

Note: Once the motor is stopped the WiFi may automatically reconnect. To manually reconnect to the WIFI ADAPTOR TELEMETRY, open the application and press the Connect icon in the upper right hand corner of the main menu. If this fails, use the WiFi settings in the **App Settings** menu.

Note: If the WiFi connection is disconnected during drive-time while the motor is running, the data is still stored in the Log even if the ESC power is turned off/on. Once the WiFi connection is restored, press the main menu Log icon to view the stored data. Be aware that this data will be deleted once the motor starts running again.

1. Main Menu

The Main Menu consists of four ESC icons and one Application Submenu icon in addition to a WiFi connection button icon and exit button icon. The Application Submenu allows for adjusting options within the context of the application only. The ESC icons consist of: ESC Settings, Live Telemetry, Data Log, and Firmware Updates.





Connect icon (upper right corner). Links or unlinks the ESC and the module. The icon will change colors depending on the connection status:

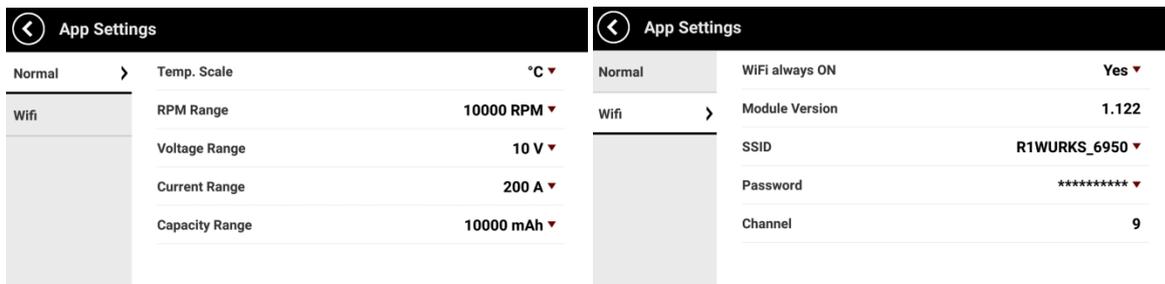
- **Black** Connect icon: WIFI ADAPTOR TELEMETRY is connected to ESC; press to disconnect.
- **White** Connect icon: WIFI ADAPTOR TELEMETRY is not connected to ESC; press to connect.



Note: If the Smartphone and the module are disconnected, all main menu icons requiring a WiFi connection will become greyed out. If reconnecting the WIFI ADAPTOR TELEMETRY using the Connect button fails, check WiFi settings by pressing the **App Settings** icon.



App Settings icon brings up the Application Settings Menu. Two dropdown menus are accessible from this screen: **Normal** (top left side) and **WiFi** (lower left side):



Normal: Set the Temperature Scale (Celsius/Fahrenheit), RPM Range, Voltage Range, Current Range and Capacity Range. Use the drop-down arrows to change or enter field values.

WiFi: View current channel being used and set the Wi-Fi name (SSID) and password. Use the drop-down arrows to change or enter field values. Reset the WiFi connection after setting/changing the SSID or password.

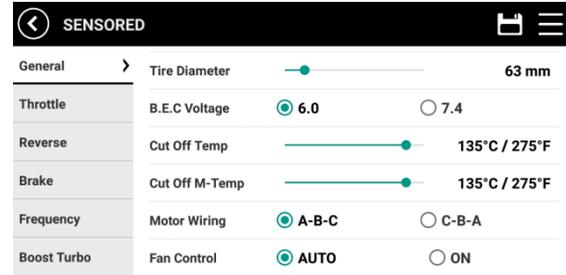
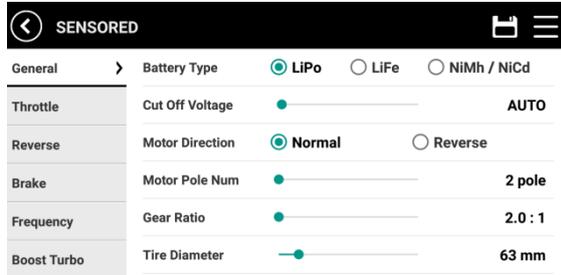
Note: If you set “WiFi always ON” to “YES”, the module connected with Smart device. Disconnection depends on RF status. If you set “No”, the module will be disconnected, except “Live” mode.

To exit this submenu and return to the Main Menu, press the left-bracket icon (<) in the upper left corner of the screen.

2. SETTINGS Menu



ESC SETTING Menu.



Motor Type Selection Option (upper left side of screen). The ESC settings menus are different depending on motor type. Change the motor type by selecting **SENSORED** or **HYBRID**



SAVE icon (upper right side of screen). Press to save all set or adjust settings before exiting this screen or changes may not take effect.



SUBMENU icon (upper right side of screen). Press to bring up a dropdown menu for the following options:

Import: If settings have been previously exported to the Smartphone, press this option to import the saved values from the phone and upload them to the app. Press the SAVE button to apply the settings to the ESC.

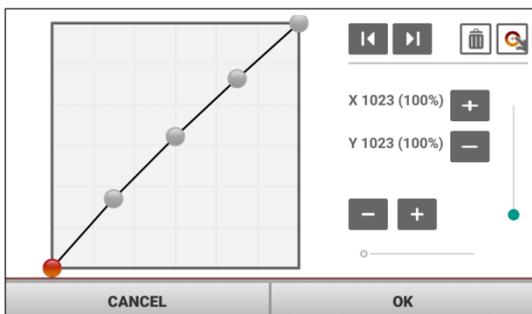
Export: To save all values that have been set in the application, press this option to export all settings to the Smartphone.

Factory: To clear all settings and return the ESC to the factory defaults, press this option to delete all values.

Note: Refer to the ESC Manual for information on the settings categories and their functions.

Setting the Throttle Power Curve

Press the **Throttle** submenu option from the right-hand menu to set the power curve to achieve a desired throttle curve. The following throttle curve screen will appear:



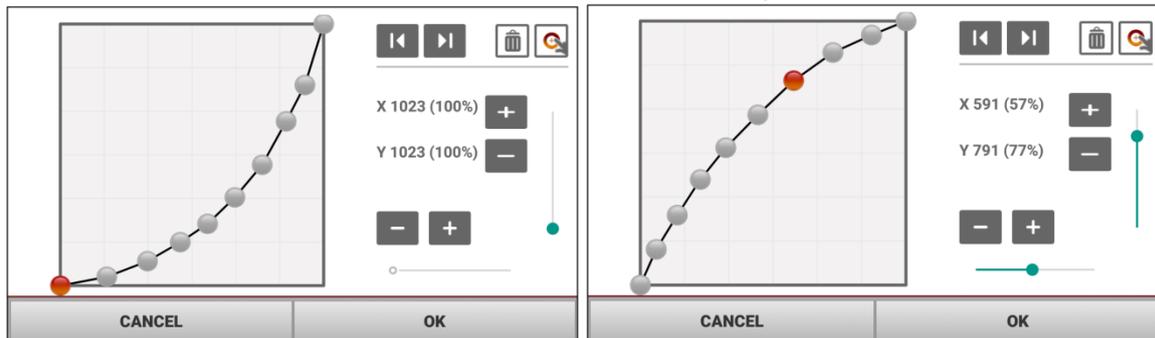
The curve includes five pre-saved points. Press to highlight orange a point and drag the highlighted point to adjust the settings. Press the curve line between two points to create a new throttle point, and drag the new point to adjust its settings along the curve line. Press the **Add Point** button to save changes to the new point. Data for up to ten throttle curves can be saved and loaded to the application.



Delete Point icon button (upper right hand corner). Select a throttle point to highlight it orange. Press the Delete Point icon and the point will disappear.



Add Point icon button (upper right hand corner). Add a newly-created throttle point to the curve by pressing the Add Point icon. The highlighted point will turn grey when saved. Points are not added if the distance between points is too close.



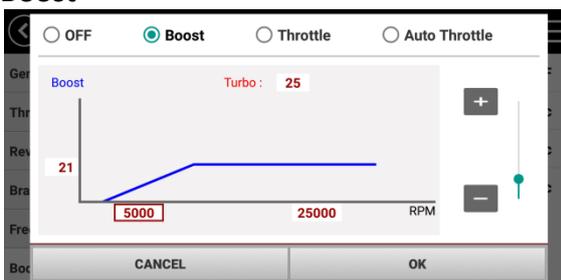
Setting the Boost/Turbo Timing:

To set the boost / boost throttle limit in the R1WURKS DIGITAL-3 ESC APP press the **Boost Turbo** submenu option from the right-hand menu. Select **OFF**, **Use Boost**, or **Use Boost and Throttle**.

OFF

Turns off the advanced boost/turbo timing function.

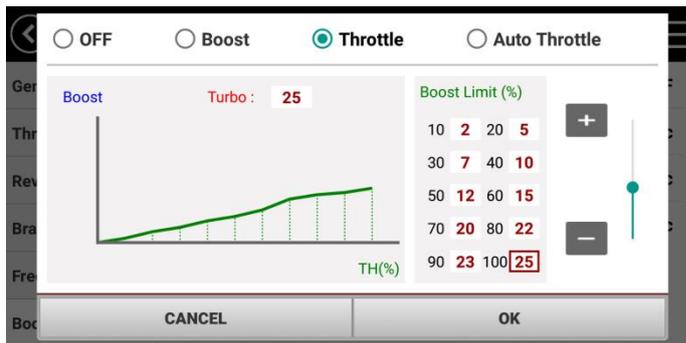
Boost



Use Boost sets the boost/turbo timing according to the motor's RPM. Items that can be set on the screen are Start RPM, End RPM, Boost advanced timing, and Turbo advanced timing:

- The **x-axis** (horizontal) of the graph sets the RPM to which the boost timing is applied.
- The **y-axis** (vertical) of the graph sets the value of Boost timing.
- **Turbo** sets the timing of the turbo when at maximum throttle.
- The **RPM Min** (left value field) changes the starting RPM at which timing is applied and **RPM Max** (right value field) changes the RPM at which the maximum boost timing occurs.

Throttle



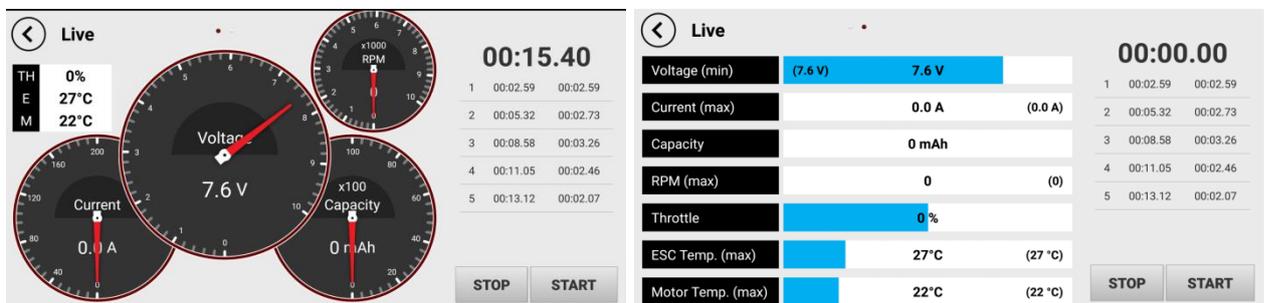
Use Throttle adds the timing limit according to the throttle position set in the Use Boost screen.

- **Turbo** sets the timing of the turbo when at maximum throttle.
- **Boost** limits the Boost value according to the position of the throttle. In the example above, **Boost Limit 10%: 2** = the maximum boost timing value is 2 when the throttle position is at 10%.

NOTE: Boost/Turbo timing settings may vary depending on the state of the motor and ESC. Refer to the motor and ESC manuals before adjusting this setting. Incorrect Boost/Turbo timing settings can irreparably damage the motor or ESC.

3. Live Telemetry / Stopwatch Screen

Press the **Live** icon on the Main Menu screen to bring up the Live Telemetry screen:



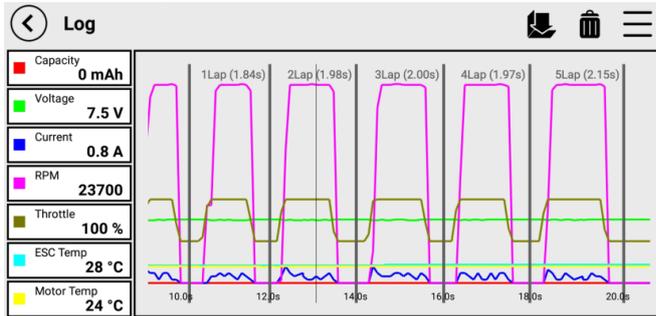
The Live Telemetry screen shows the real-time ESC information data. Check voltage, RPM, current, battery consumption, and motor/ESC temperature data of the current drive. This data is displayed only when WiFi is connected. Once WiFi is disconnected this data information is deleted. Save log files for future review before disconnecting WiFi.

To adjust voltage, current and RPM range settings, exit back to the Main Screen, press the Application Settings icon and select the Normal dropdown menu.

User can use stopwatch to record lab times.

4. Data Log Screen

Press the **Log** icon on the Main Menu screen to bring up the Data Log screen:



Record up to 50 minutes of driving data to save and analyze.

While the graph is displayed on the screen, touch any of the items in the left-hand list (e.g. capacity, voltage, RPM, etc.). Detailed information about the item will be displayed. Numbers can be enlarged for better analysis.

The following icons are located in the upper right corner of the screen:



Load Log Data icon. Any log data previously saved can be loaded by pressing this button. The log can be saved while the motor is running, but previously saved logs can only be loaded while the motor is off.



Delete Log Data icon. Press this button to delete the current driving record. All unsaved data records will be erased.



SUBMENU icon. Press to bring up a dropdown menu for the following options:

Load: Load a previously saved driving record.

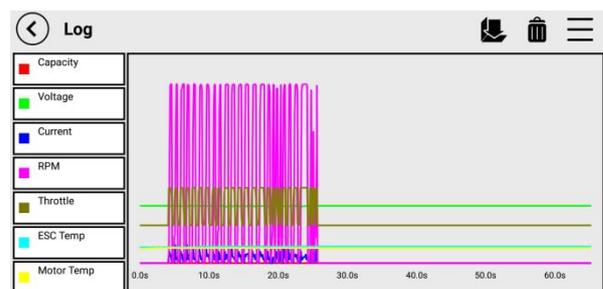
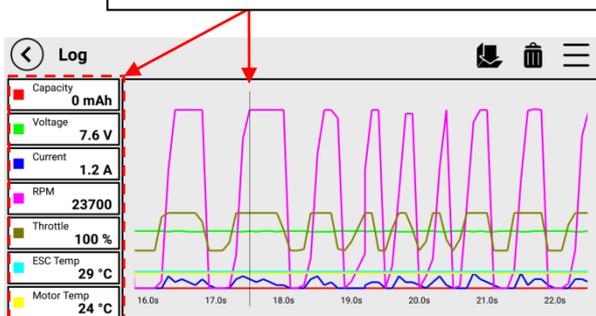
Save: Save a record for drives not exceeding 50 minutes.

To Check Log Data:



Click the Load Log Data icon to bring up any drive data that is previously stored:

To view data in greater detail, swipe the screen to expand:



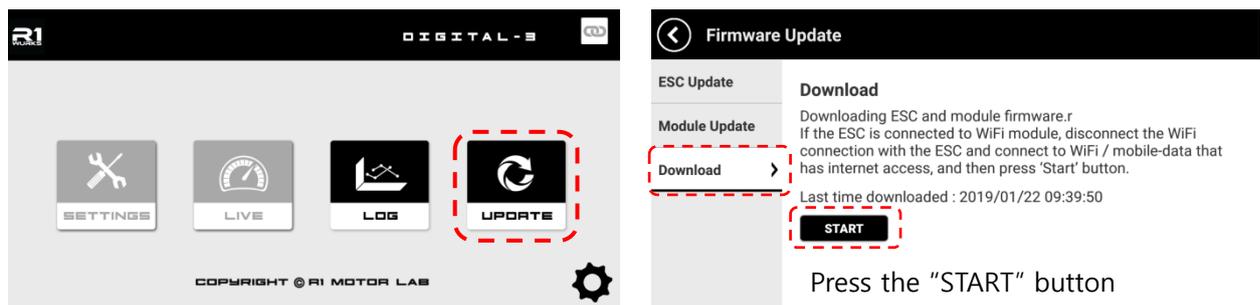
Press the screen anywhere along the line to place a grey line (shown above). The telemetry information for that place will appear in the data box at left, as indicated above by the red arrows and dashed box. Check your data values and make any changes through the main menu Application Settings icon. For example, you can adjust the Y-axis level scale.

Note: When the power is turned on, the driving record is automatically saved while the motor is running. As soon as the motor starts to run, any log data from previous drives will disappear. This data also disappears once the WiFi connection is interrupted: save all log data for future analysis before disconnecting the WiFi. Up to 50 minutes of driving data can be stored until the cache is cleared.

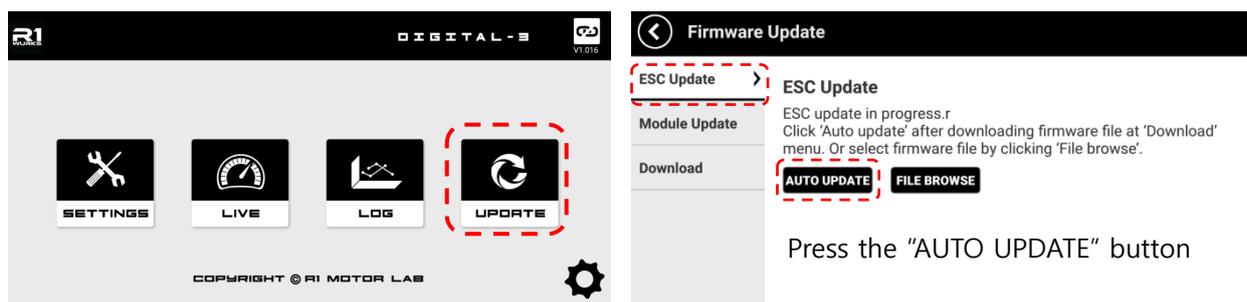
5. Firmware Update

You can download the latest firmware version from the Internet. When performing "Download", select a network (mobile internet service, LTE, etc.) that can connect to the Internet and download the firmware file. After downloading, disconnect the Internet connection, reconnect the WiFi, and connect to WIFI ADAPTOR TELEMETRY.

Note: If the Wi-Fi wireless update fails, reset the ESC before further use.



Press the **Update** icon on the Main Menu screen to bring up the Firmware Update screen:



Use this menu to update either the ESC or the WiFi Module. Use the dropdown options on the left-hand side to choose between the two.

Choose either ESC Update or Module Update. Follow the instructions provided by the application for the item being updated. After downloading the update file to the Smartphone, perform the update wirelessly. Do not disconnect power from the Smartphone or ESC while performing the update.