

Krypton Project Programming User Manual

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Preface

The Manual is applicable to **Krypton Project Programming** (Version 1.1.0.7), with a nuance to the previous version and function modes, but the same operation methods. Krypton Project Programming App supports multi operation systems and compatible with both Android and iOS.

The Manual introduces the methods of using Krypton Project Programming App on mobile devices, and offers some simple examples for your better understanding to make the use effectively. Please read through the whole manual before starting with Krypton product.

Wish you a great experience!

1st Chapter Install and Connect

Krypton Project Programming is an App for learning about Brick Series Krypton. You can assemble the presented models step by step, master assembling methods of Brick Series Krypton and control the motions via different in-built command modes.

1.1 App download and install

1.1.1 Android system

Search "**Abilix Apps**" in Google Play to download and install. Find the needed App in Abilix Apps to download and install.

Notes: If it is installed on Pad with Android system, the resolution is supposed to be 1280*800 at least; if it is installed on mobile phone with Android system, the resolution is supposed to be 1280*720 at least.


1.1.2 iOS system

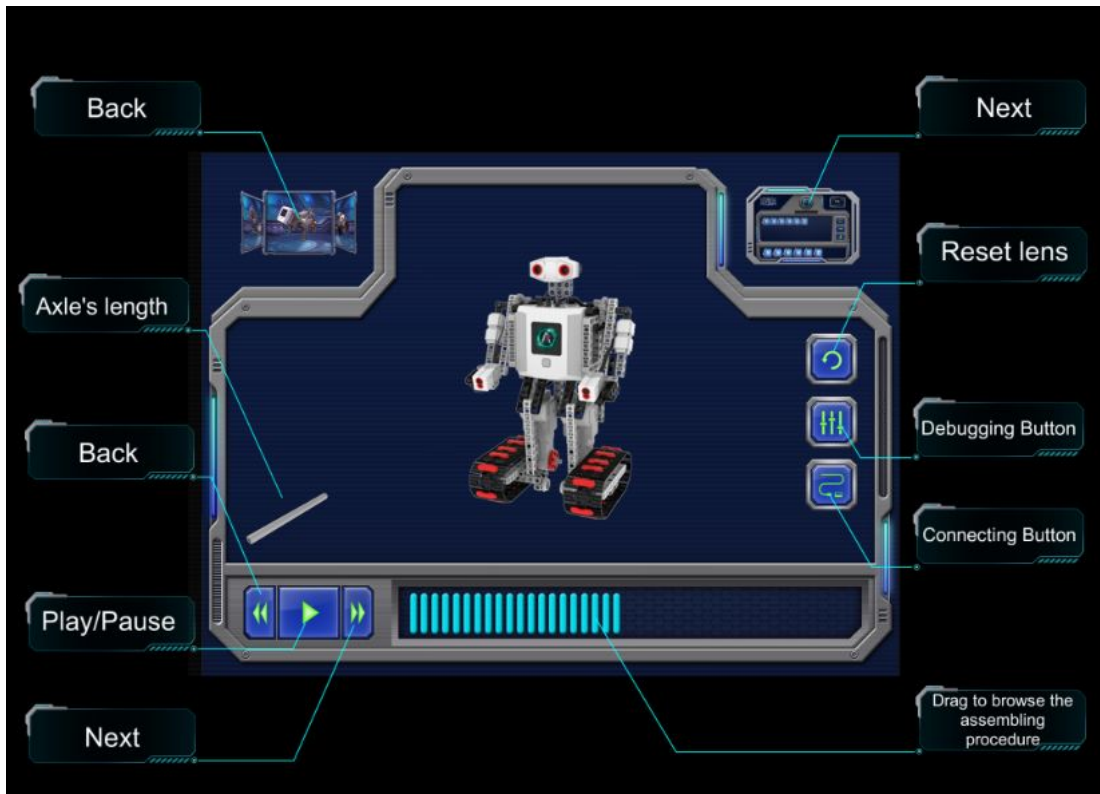
Search "Krypton Project Programming" in App Store and find corresponding App to download and install. iOS version supports devices with iOS 9.0 and above (including iPad and iPhone), iPhone 6 and above.

1.2 Main Interface of program

Open App after " Krypton Project Programming " is installed successfully. The main interface is as below:



Swipe left/right to select an applicable model, tap the current model to enter “Assemble” interface. An icon  (Help) on the top left corner will appear, tap to get help.

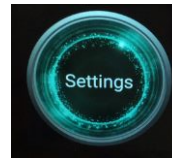


1.3 Connect

There are two methods for connecting the controller to a mobile device: via the controller's hotspot and via the router. Download the program after successfully connecting to the controller for data communications. It is not necessary to make a connection if you only learn to assemble models. Take iPad for example to introduce the two methods:

1.3.1 Connect via the router

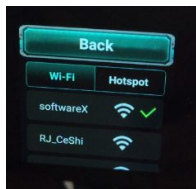
1). Connect iPad to the wireless router;



2). Swipe the controller interface to find Settings ” , tap to enter;



3). Tap the icon Wi-Fi “ ” and turn on it, find the name of the previously connected wireless router, connect the controller to that router



Notes: If the wireless router joins the Internet, the controller joins the Internet as well and it will automatically check whether software has been up to date.

4). Go back to the main interface and swipe the controller interface to find QR



code “ ”;



5). Open Krypton Project Programming App on Pad, tap the icon ”



” on the top to scan QR code on the controller;

6). “Robot’s hotspot’s name” and “Password” will appear after scanning (The shown content can be ignored);



7). Tap “Next Step” to connect. The following prompt will appear after connected;

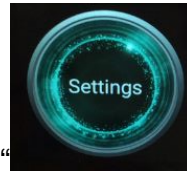


8). Tap “OK” to complete connection. If the controller is connected to Pad, an



icon “

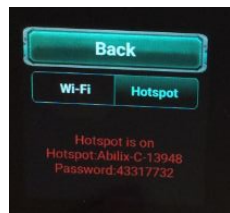
13.2. Connect via the controller's hotspot:



1) Swipe the controller interface to find “Settings”, tap to enter;

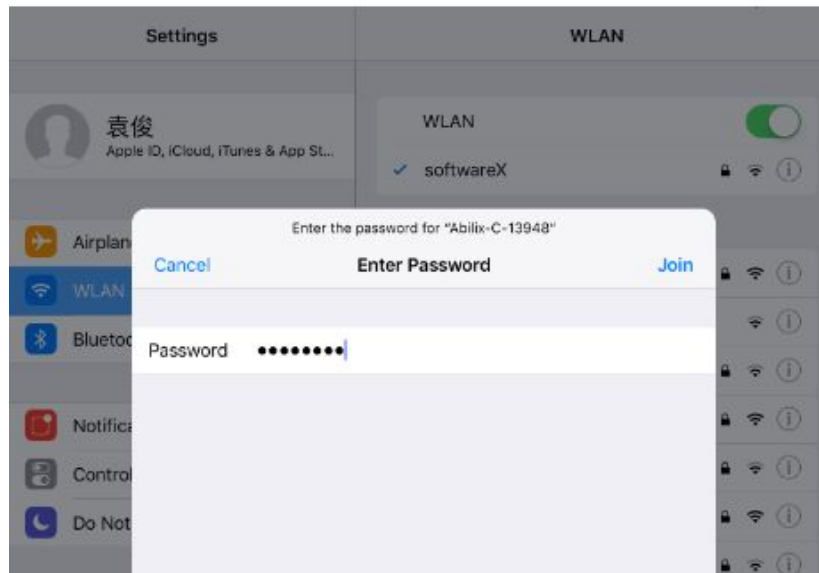


2) Tap the icon “Wi-Fi” and turn on hotspot, the controller's hotspot is



turned on then as follows;

3) Turn on Wi-Fi on iPad and find the Wi-Fi name sent by the controller, input the password to join the controller's hotspot. See as follows:



4) Open “Krypton Project Programming” on iPad and tap the icon “Krypton Project Programming”



on the upper right side to enter program-writing interface; tap the icon





on the top to scan the QR code “” on the controller ;


5) “Hotspot’s name” and “password” will appear after scanning;



6) Tap “Next Step” to connect and the following prompt will appear after connecting successfully:



Tap “OK” to complete the connection. If the controller is connected to iPad, an

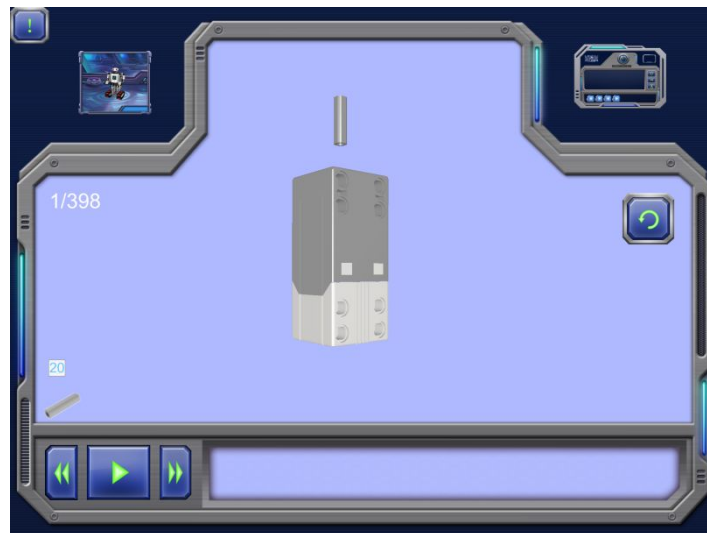
icon  will appear on the top of the interface.

Notes: During the first-time connection, you need to scan QR code on the controller to make your mobile device join the controller’s hotspot. Later, the mobile device will automatically connect to the controller when opening “Krypton Project Programming” App.


2nd Chapter Model Assembling

2.1 Assemble functions


Open “Krypton Project Programming” and swipe left/right to choose the models you want to assemble. Tap the picture in the midst of the screen to enter model assembling interface. Take Krypton 5 Humanoid Robot for example:





2.1.1 Button

1. Tap the button  on the bottom left corner to play dynamic assembling process, tap again to pause the playing;

2. Tap the button  on the bottom left corner, forward to the next step;


3. Tap the button  on the bottom left corner, back to the previous step;

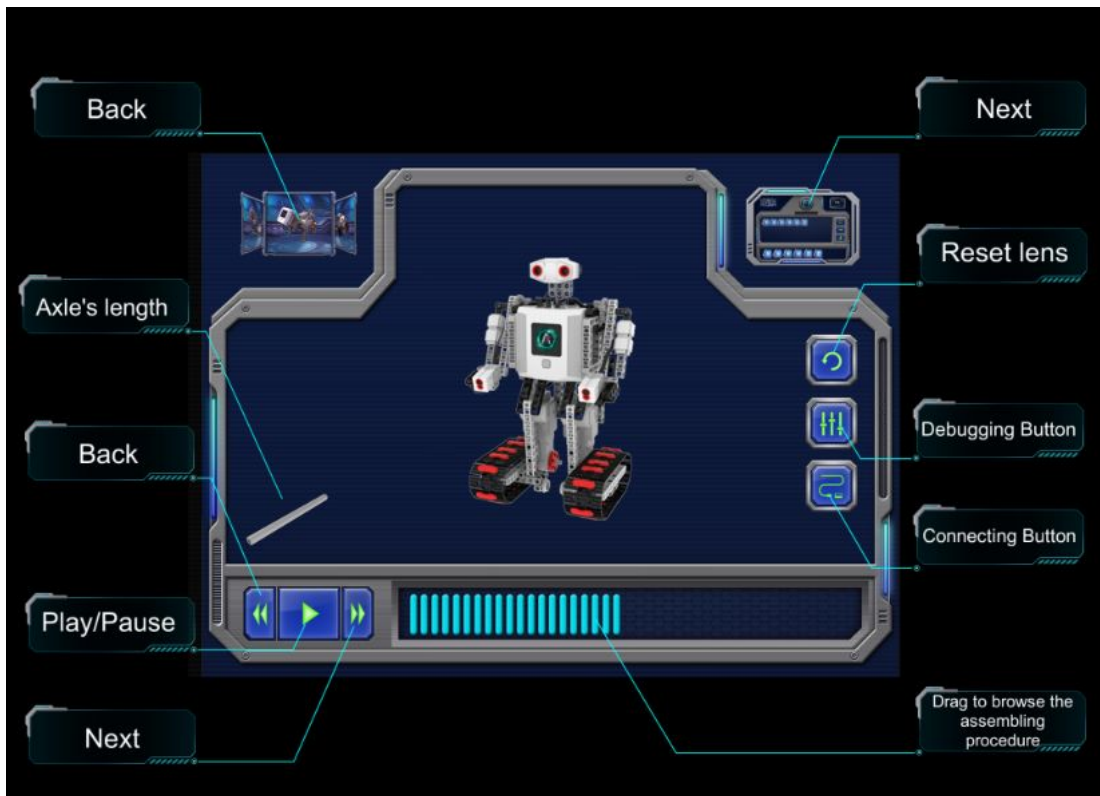
4. Tap the button  on the right side of the screen, reset the position of the model;

5. Tap the button  on the top left corner, back to the interface of selecting models;

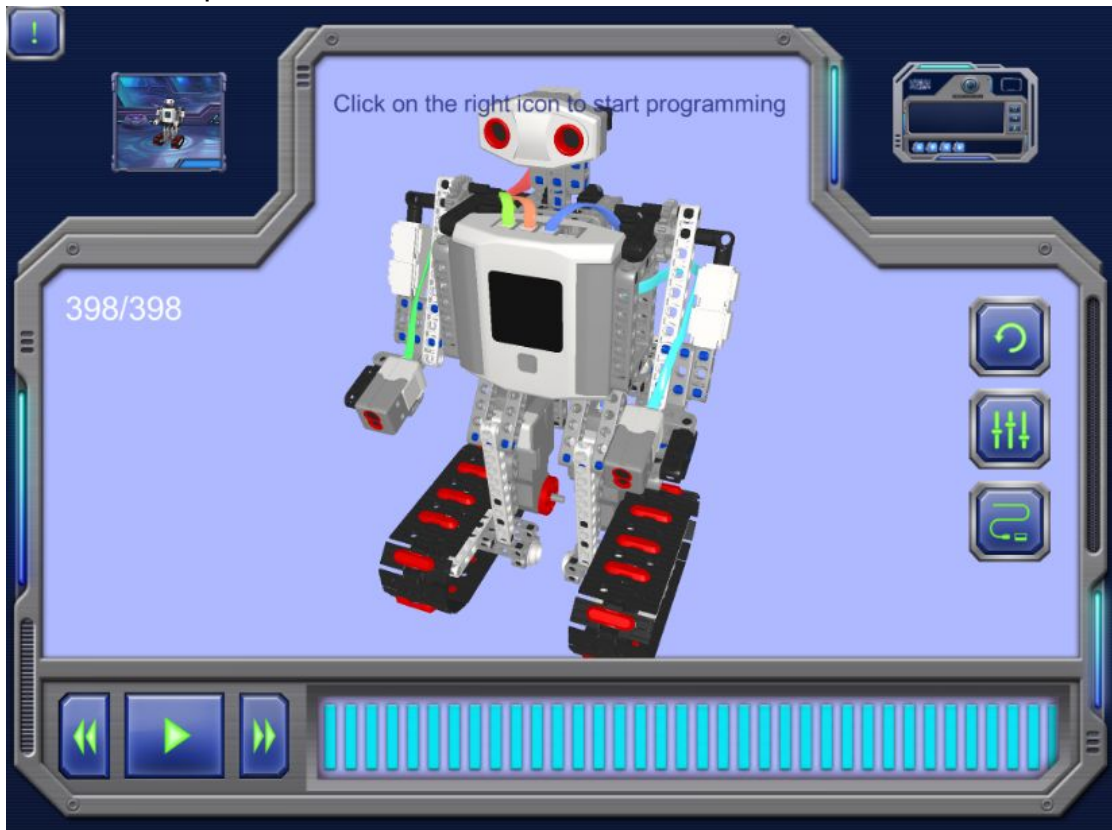


6. Swipe on the progress bar to quickly fix the wanted position;

7. Tap the button  on the top left corner, an interface will prompt to demonstrate the function of each button.



You can assemble the model accurately referring to the dynamic assembling process. The completed interface will show as follows:





2.1.2 Adjust the position of models

- Rotate the 3D model by a single finger in the midst of the screen;
- Swipe to translate the 3D model by two fingers;
- Split two fingers apart to enlarge the 3D model;
- Get two fingers closer to shrink the 3D model.





2.1.3 Debugging interface of sensors and motors

Two buttons will appear on the right side after completing the assembling. Tap

the icon  to render the cables into a different color, this can easily distinguish the cables on the robot to users, so as not to plug the wrong port.

Tap the icon  to prompt the users to connect the controller, the connection methods are same as the introduction in the first chapter. the following debugging interface will pop-up after connecting successful:




1. CAM Screen: Once the robot has “Camera”, and “Camera” port is accessed, the image will appear on CAM area;
2. Motor debugging area: The port which should access to the motor will be highlighted. After the motor is accessed, slide the block to rotate the motor, change the velocity or veer. Tap the icon  to restore the block and the motor will stop.
3. Sensor area: The port which should access to the sensor will be highlighted and marked by a red small circle light. If the wrong port is accessed, even there is data in the frame, the small circle keeps red. Take gray scale sensor for example: If port 1 is accessed wrongly, you may see , while port 4 is right accessed, you can see . Disconnect the sensor and tap the icon  to erase the sensor icons.

The data in the frame is the returned value of sensors collected by the controller’s I/O port.

| | |
|-------------------|---|
| Grayscale Sensor | The returned value of white color is low, approximately 200 for an ordinary white; in contrast, the darker the color is, the higher the returned value will be, over 3000 in maximum. |
| Ultrasonic Sensor | Identify the distance between the obstacle and the sensor. The farther the distance is, the larger the returned value will be, ranging from 50 to 1500. Unit: mm. |
| Touch Sensor | If the button is pressed, a max value (approximately 4000) will be returned; otherwise, the returned value will be 0. |
| Color Sensor | Different returned values represent different colors and a fixed figure accords with a corresponding color. Please see as follows: Red: 0, Yellow: 1; Green: 2; Blue: 3; White: 4. |

2.2 Programming



Tap the icon  on the upper right side to enter program-writing interface, please see as follows:



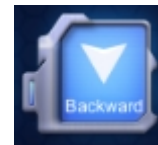
Debugging tools

Program instruction module

2.2.1 Program Writing

Connect App to the controller before writing program, make reference to the introduction in the first chapter. Drag different command modes into programming area and combine them based on your own design. You also can drag the command mode to change the order or delete.

Press the command icon for a while and a dialogue will pop up, then, you can



change the velocity or time. For instance: Press the icon for a

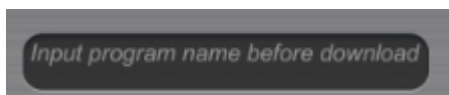


while and will pop up, slide up or down to alter the parameter.

Notes: The command parameters in some models can not be altered.

2.2.2 Program download and implement


After program writing is completed, tap the upper input frame




to enter the name of the downloaded program.

The name should consist of no more than 8 English letters. Implement the program after downloading successfully:


1. Continuous Duty

Tap the button  to continue implementing all commands in the programming area. Tap the button again to stop implementing.

2. Step into

Tap the button  to step into all commands in the programming area. Tap the button again to stop implementing.

3. Download and Implement

Tap the button  to download program and “Download Completed” will appear on the controller once it is completed. Slide left/right to find the name of the downloaded program and tap to enter, the controller will implement all previously downloaded commands.

Tap the button again to stop implementing. Press the program’s name on the controller for a short while to delete the program.