

WER 2020-2021 - INTERNET OF EVERYTHING

Technical sheet

Krypton 3 Robotics kit

What's in the box?



Programmable Logic Controller:

User-friendly main control board. This is the brain for every project in this course. The controller manages the program signals from and to each sensor and actuator. It offers a simple UI through an LCD screen.












Main characteristics:

- RJ15 connector pins for 7 sensors, 4 motors, and 1 camera module
- Multicore Cortex-A7 processor @1.3GHz
- 1.6Gb storage
- 64KB RAM
- Wi-Fi & Bluetooth modules
- 2.3" single touch LCD screen
- Embedded sensors: Gyroscope, Compass, Microphone.
- 1500mAh rechargeable battery

Structural parts:

This kit includes a total of **391** plastic parts. These structural components can be assembled without the need for special tools.

Part list				
Porous beam Black 30mm x10 	Porous beam Red 30mm x2 	Porous beam Green 30mm x2 	Porous beam Yellow 30mm x2 	Porous beam Blue 30mm x2 
Porous beam 20mm x14 	Porous beam Gray 30mm x10 	Porous beam gray 70mm x11 	Porous beam White 110mm x4 	Axle(20mm) x4 
Axle (30mm) x4 	Axle (40mm) x4 	Axle(50mm) x4 	Axle (60mm) x4 	Axle(80mm) x4 
Coupling (90°) x2 	Mecanum Wheel x 1 	Guide Wheel x2 	Coupling(20mm) x4 	Marble X1 
Bolt(20mm) x80 	Bolt(30mm) x40 	Bolt(15mm) x18 	Axle sleeve x10 	Beam U shapeX 2 
Middle A connector x4 	Slide bearing x1 	Short bolt(2mm) x5 	Porous beam 90° x2 	Porous beam 126.87° x10 

Porous beam 90° x4 	Porous beam 126.87° x4 	Gray gear #1 x2 	Black gear #1 x8 	Yellow gear #1 x2 
Gray gear #1 x2 	Black gear #2 x4 	Yellow gear #2 x4 	Cube x20 	Half cube x6 
Cube connector x4 	Slope cube x2 	Square beam x4 	Non-slip rubber x18 	Rail x36 
Rail rim x4 	Tire x2 	Rim x2 	Motor cable x2  3 pin	

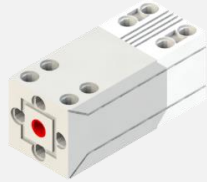
Sensors

The primary function of these components is to collect data from the environment. Each sensor must be connected to the PLC board and be programmed individually.

Sensor list			
Picture	Name	Quantity	Function
-	Compass (embedded)	1	Using the earth's magnetic field determines the position in which the PLC is facing.
-	Gyroscope (embedded)	1	Determines the acceleration force magnitude in X, Y, and Z axis.
-	Microphone (embedded)	1	Records any environmental audio when active.
-	Position (embedded in motor)	2	Determines the motor's axis actual position and RPM

Actuators

Actuators create motion within an assembly. Each actuator must be connected to the PLC board and be programmed individually.

Actuator list			
Picture	Name	Quantity	Function
-	RGB LED (embedded)	1	Individually controllable RGB LED light.
-	Speaker (embedded)	2	Play any sound coming from the PLC board.
	Small motor	2	Create rotational motion at low torque and high speeds.

Minimum Hardware Requirements

Mobile Device: with Operating Systems iOS 9.3 or later or Android Oreo 8.0 or later. Memory: 8GB Minimum and RAM: 2GB Minimum.

Applications:

Download the following apps in your device:

- Abilix Krypton Mobile App

This application encloses every functionality the Krypton robotics family has. The app contains introductory activities, a project gallery, interactive 3D assembly manuals, and three different block-based programming environments.



The app is available for iOS and Android users:

Apple AppStore: <https://apps.apple.com/mx/app/abilix-krypton-todays-future/id1140118489>

Google PlayStore: <https://play.google.com/store/apps/details?id=com.partnerx.CRobotgplay>

The App Includes 3 programming modules:

- Block-based Programming (Krypton Project Programming)

This programming tool is the easiest way to start programming robotics. The user works in an environment in which there are pre-programmed blocks; each block contains a predefined sequence, which makes the robot move in a certain way. In this tool, there is no chance for failure since every block has been previously proven to work. Block-based programming is the recommended method for absolute beginners.



- Krypton Scratch Programming

This programming tool uses natural language blocks to program the robot; it works just like any other Scratch programming environment. If you are already familiar with using Scratch, this tool will fit you best.



- Krypton Chart Programming

This tool follows a flowchart programming scheme. Just as a regular flowchart program in any environment, the program will play from top to bottom following each block's configuration. Krypton chart programming is the ideal tool for more complex project development.

