INTERMEDIATE BIONIC & COMMERCIAL APPLICATIONS EDUCATIONAL ROBOTICS CAMP

Technical sheet

Krypton 1 Robotics kit – SOLD SEPARATELY

What's in the box?

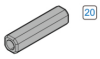
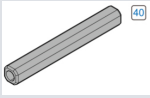
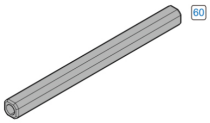
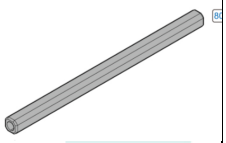
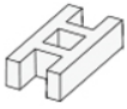
Programmable Logic Controller:
User friendly main control board. This is the brain for every project in this course. The controller manages the program signals from and to each sensor and actuator. It connects to a mobile device through a Wi-Fi connection.

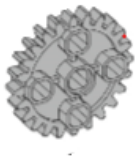
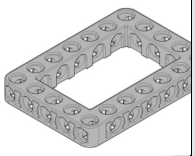
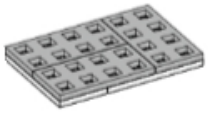
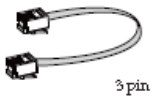
Main characteristics:

- RJ15 connector pins for 4 sensors and 2 motors
- Multicore Cortex-A7 processor @1.3GHz
- 1.6Gb storage
- 64KB RAM
- Wi-Fi module
- Embedded indicator LED light
- 6 AA Batteries (Included)

Structural parts:

A total of **715** plastic parts are included in this kit. These structural components are meant to be assembled without the need of special tools.

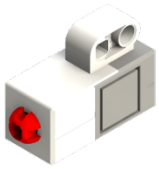
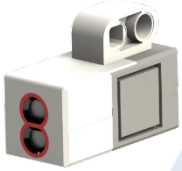
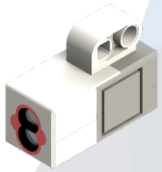
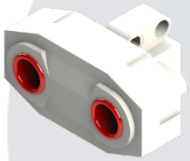
Part list				
Porous beam Black 30mm x12 	Porous beam Red 30mm x6 	Porous beam Green 30mm x6 	Porous beam Yellow 30mm x6 	Porous beam Blue 30mm x6 
Porous beam 20mm x14 	Porous beam Gray 30mm x12 	Porous beam gray 70mm x20 	Porous beam White 110mm x16 	Axle(20mm) x8 
Axle (30mm) x8 	Axle (40mm) x8 	Axle(50mm) x8 	Axle (60mm) x8 	Axle(80mm) x8 
Coupling (90°) x6 	Mecanum Wheel x 1 	Guide Wheel x4 	Coupling(20mm) x8 	Marble x1 
Bolt(20mm) x160 	Bolt(30mm) x80 	Bolt(15mm) x30 	Axle sleeve x30 	Beam U shape x2 
Middle A connector x4 	Slide bearing x8 	Short bolt(2mm) x8 	Middle L connector x8 	Middle H connector x2 

Porous beam 90° x10 	Porous beam 126.87° x12 	Porous beam 90° x6 	Porous beam 126.87° x12 	Gray gear #1 x4 
Black gear #1 x4 	Yellow gear #1 x4 	Gray gear #1 x4 	Black gear #2 x4 	Yellow gear #2 x4 
Cube x24 	Half cube x8 	Cube connector x20 	Slope cube x6 	60° cube x6 
Non-slip rubber x20 	Rail x40 	Rail rim x4 	Tire x2 	Rim x2 
Square beam x6 	Small slab x1 	1# Slab x3 	2# Slab x2 	3# Slab x1 
4# Slab x1 	8# Slab x1 	Motor cable x6 	AA Battery x6 	

Sensors

These components are used 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
-	Position (embedded in motor)	2	Determines motor's axis actual position and RPM
	Touch	1	Recalls the current state of the button, either pressed or not.
	Grayscale	2	Analyses the color of an object (how light or dark) to determine its shade of gray.
	Color	1	Determines the color of an object in front of it (red, green, blue, yellow, or white) or the intensity of a light shining upon the sensor. Best reads at 0.5in.
	Ultrasonic	1	Using an ultrasonic soundwave calculates the distance between the sensor and an object in front of it. Best reads from 1 to 25in.

Actuators

These components are used to create motion within an assembly. Each actuator must be connected to the PLC board and be programmed individually.

Actuator list			
Picture	**Name**	**Quantity**	**Function**
-	Speaker (embedded)	1	Play any sound coming from the PLC board.
	Small motor	2	Creates 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. This programming method is recommended for absolute beginners.

- Krypton Scratch Programming

This programming tool uses natural language blocks to program the robot; works just as any other Scratch programming environment. If you are already familiar 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. This is the ideal tool for a more complete and complex project development.