

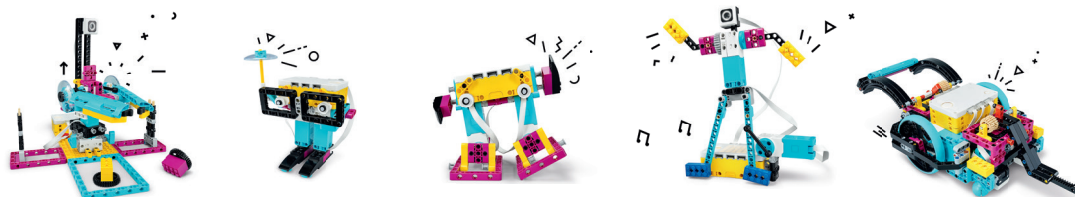
LEGO® Education SPIKE™ Prime Technical Specifications

Technic™ Large Hub



Hardware name	Technic™ Large Hub
Description	The Hub is a programmable control unit that LEGO® sensors and motors can be attached to. The Hub has an intuitive light and button interface and can work autonomously or in streaming mode.
Key features	<ul style="list-style-type: none">• 5x5 LED matrix white display• Six input/output ports• Six-axis Gyro Sensor (three-axis accelerometer and three-axis gyroscope)• Three-button navigation, including light interface• Speaker• Connectivity to devices using USB and Bluetooth• MicroPython operating system• The Hub has a Technic build geometry that allows for versatile building and easy integration into models
Connector type	LEGO Power Functions 2.0 (LPF2) for connection to LEGO sensors and motors
Hub capabilities	<p>5x5 LED matrix white display:</p> <ul style="list-style-type: none">• 25 white LEDs• Each LED is programmable• Each LED can be dimmed in 10-step increments <p>Input/output ports:</p> <ul style="list-style-type: none">• 6x LPF2 input/output ports (ports A, B, C, D, E, and F)• 115 kB port speed (ports E and F are prepared for “high-speed”)• Autodetection of sensors and motors• Ports can be chosen freely when pairing motors <p>Six-axis Gyro Sensor:</p> <ul style="list-style-type: none">• Three-axis accelerometer• Three-axis gyroscope• Able to report:<ul style="list-style-type: none">• Gyroscope mode (three-axis)• Accelerometer/tilt mode (three-axis)• Gestures as <i>tap</i>, <i>free fall</i>, and <i>shake</i> <p>Three-button interface:</p> <ul style="list-style-type: none">• Center Button:<ul style="list-style-type: none">• Turns the Hub on/off• Executes selected programs• RGB light LEDs inside the button that communicate system status and are programmable• Left/Right Button:<ul style="list-style-type: none">• Navigates programs on the Hub <p>Speaker:</p> <ul style="list-style-type: none">• Used for interface sounds• Maximum sound quality is 12 bit 16 KHz (mono)

The LEGO® Education SPIKE™ app may not support all hardware features and functionalities.



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Wireless connectivity:

- Enables users to connect wirelessly to smart devices (phones, tablets, laptops, etc.) and LEGO® LPF2 remotes and wireless components using Bluetooth
 - Bluetooth Classic 4.2 (BTC)
 - Bluetooth Low Energy 4.2 (BLE)
- Connectivity to smart devices (laptops, tablets, etc.) is only supported with BTC
- Programs, sounds, and firmware can be updated wirelessly (BTC only)
- Minimum range: 10 meters (line-of-sight, without obstructions, indoors)
- The Hub can have a maximum of four BLE and one Bluetooth connections to compatible wireless components
- Connection interface button on the Hub enables users to turn wireless functionality on/off
 - RGB light LED indicates connectivity status ("Bluetooth on/off," "connected," "out of range")

Power supply:

- Specially designed rechargeable battery is required
 - Charges inside the Hub via micro USB cable
 - Can be removed from the Hub without the use of tools
- RGB color LED indicates power/charging status

Size and weight:

- Hub Weight 63 g (without battery)
- Hub Dimensions: L88.0 x W56.0 x H32.0 mm.

System:

- The Hub is powered by a 100MHz M4 320 KB RAM 1M FLASH processor
- 32 MB of memory for programs, sound, and content
- Embedded MicroPython operating system
 - Provides an open platform for advanced users and third-parties

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