LEGO® Education SPIKE™ Essential Technical Specifications

LEGO® Technic™ Small Hub

Hardware name LEGO® Technic™ Small Hub

Description The Hub is a programmable control unit to which LEGO sensors and motors can be attached. It has an intuitive light and button interface, and works in streaming mode.

Key features
- Two input/output ports
- Six-axis Gyro Sensor (three-axis accelerometer and three-axis gyroscope)
- One-button interface with light indicator
- Device connectivity using USB and Bluetooth Low Energy
- MicroPython operating system
- 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

Input/output ports
- 2x LPF2 input/output ports (Ports A and B)
- 115 kB port speed
- Autodetection of sensors and motors

Six-Axis Gyro Sensor
- Three-axis accelerometer
- Three-axis gyroscope
- Able to report:
  - Gyroscope mode (three-axis)
  - Accelerometer/tilt mode (three-axis)
  - Gestures, such as tap, *free fall*, and *shake*

Button Interface
- One-button interface
- Turns the Hub on/off
- RGB LED next to the button communicate system status and are programmable

Wireless Connectivity
- Enables users to connect wirelessly via Bluetooth to smart devices (i.e., phones, tablets, laptops, etc.) and LEGO® LPF2 remotes and wireless components
- Firmware can be updated wirelessly through Bluetooth
- Minimum range: 10 meters (line-of-sight, without obstructions, indoors)
- The Hub can have a maximum of four BLE connections and one Bluetooth connection to compatible wireless components
- RGB LED indicates connectivity status (i.e., Bluetooth on/off, connected, out of range)

Wired Connectivity
- Micro USB enables users to connect to smart devices via USB cable
- Firmware can be updated via USB connection
- RGB LED indicates connectivity status (i.e., connected)

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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: 26 g (without battery)
- Hub dimensions: L 56 x W 40 x H 32 mm

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

The LEGO Education SPIKE™ App might not support all hardware features and functionalities.