EV3 TECHNOLOGY

Connecting the EV3 Technology

Connecting Sensors and Motors

In order to function, motors and sensors must be connected to the EV3 Brick.

Using the flat black Connector Cables, link sensors to the EV3 Brick using Input ports 1, 2, 3, and 4.

If you create programs while the EV3 Brick is not connected to your computer, the software will assign sensors to default ports. Those default port assignments are:

+ Port 1: Touch Sensor
+ Port 2: Gyro Sensor/Temperature Sensor
+ Port 3: Color Sensor
+ Port 4: Ultrasonic Sensor/Infrared Sensor

If the EV3 Brick is connected to your computer while you program, the software will automatically identify which port is being used for each sensor or motor.

Using the flat black Connector Cables, link motors to the EV3 Brick using Output ports A, B, C, and D.

As with the sensors, if the EV3 Brick is not connected when you are writing a program, each motor will be assigned to a default port. Default port assignments are:

+ Port A: Medium Motor
+ Port B & C: Two Large Motors
+ Port D: Large Motor

If the EV3 Brick is connected to the computer when you are programming, the software will automatically assign the correct port in your programs.

Connecting Sensors

Connecting Motors

NOTE:
The software cannot distinguish between two or more identical sensors or motors.

EV3 TECHNOLOGY

Connecting the EV3 Technology

Connecting the EV3 Brick to Your Computer

Connect the EV3 Brick to your computer by USB Cable or wirelessly using either Bluetooth or Wi-Fi.

USB CABLE

Using the USB Cable, plug the Mini-USB end into the EV3 Brick's PC port (located next to Port D). Plug the USB end into your computer.

USB Cable connection

Connecting the EV3 Technology

WIRELESS—BLUETOOTH
If your computer is not Bluetooth-enabled, you will need a Bluetooth USB dongle for your computer.

Making a Bluetooth connection to the computer
Before you can make a Bluetooth connection between the EV3 Brick and the computer running the EV3 Software, you will need to enable Bluetooth on the EV3 Brick. Directions for this can be found on page 33.

Once you have enabled Bluetooth on the EV3 Brick, it can now be connected to the computer and EV3 Software.

1. First, confirm that the EV3 Brick is turned on.
2. Open a new or existing program in the EV3 Software (see the **EV3 Software** chapter on page 37 for directions on how to do this).
3. Go to the Hardware Page at the lower right of the screen— expand the window if collapsed (learn more about the Hardware Page on page 46).
4. Click on the Available Bricks tab. If your EV3 Brick is not already listed, click the Refresh button to locate the EV3 Brick and check the Bluetooth box that will appear.
5. Accept the connection on your EV3 Brick manually, then enter the passkey and press the Center button for OK. The default is 1234. Repeat this in the EV3 Software.
6. The connection is now established and a "<>" symbol is shown on the top left of the EV3 Brick Display (next to the Bluetooth icon) to confirm the connection.

To disconnect the EV3 Brick from the computer, click on the Disconnect button next to the Refresh button in the Hardware Page.

More information about Bluetooth settings on the EV3 Brick can be found on page 33.

Wireless connection

EV3 TECHNOLOGY

Connecting the EV3 Technology

WIRELESS—WI-FI

Your first step in connecting to Wi-Fi is to acquire a Wi-Fi USB dongle. For a list of compatible dongles, ask your local LEGO® Education provider or go to the official LEGO® MINDSTORMS® Education website (www.LEGOeducation.com/MINDSTORMS).

To begin the setup, you must have access to a wireless network, and know the network's name and its password.

If the EV3 Software is open, close it and insert your Wi-Fi dongle into the EV3 Brick using the USB Host port.

Before you can connect the EV3 Brick to a network, you will need to enable Wi-Fi on the EV3 Brick. Directions for this can be found on page 35.

Settings screen

NOTE:
The EV3 Brick only supports the following network encryption modes: None and WPA2.

NOTE:
Because of keyboard limitations, the password for the network must be made up of numbers, capital letters, and lowercase letters. You will not be able to use some symbols, such as the # sign, or letters and symbols from non-Latin alphabets.

Connecting the EV3 Technology

Connecting the EV3 Brick to a network

After selecting Wi-Fi on the Settings screen, use the Up and Down buttons to select Connections and press the Center button for OK. The EV3 Brick will now search for and list available Wi-Fi networks.

Using the Up and Down buttons for navigation, find your network on the list. If the EV3 Brick is not already connected to your network (indicated by a check mark), select your network using the Center button.

In the Network dialog box that appears, select Connect and press OK with the Center button. You will now be asked to enter the encryption type and the network password using the Left, Right, Up, and Down buttons to navigate (upper and lower cases do matter here).

Once you have entered the correct password, press the check mark for OK. You will now be connected to the network.

If the EV3 Brick does not find your network in its search, the network may be hidden. To connect to a hidden network, select "Add hidden."

You will then be asked to enter the name, encryption type, and password for the hidden network you wish to add (upper and lower cases do matter here). Once done, the EV3 Brick will be connected to the hidden network and the network will be included in the network list.

Network list

Connect to network

Network password

Add hidden network

NOTE:
Once you have connected to a network using its password, the EV3 Brick will remember the password for future connections. Known networks are indicated in the list with an "*".

Connecting the EV3 Technology

Making a Wi-Fi connection from the computer to the EV3 Brick
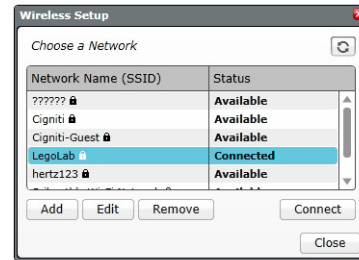Using the USB Cable, connect the EV3 Brick to the computer.

Open an EV3 Software program. Access the Wireless Setup tool in the Hardware Window (at the bottom right of the screen), or select Wireless Setup from the Tools Menu.

The computer will display which networks it detects.

Select the network you want to connect to and click on "Connect" to configure the connection. To add a network that is not broadcasting its Network Name (SSID), click "Add."

To edit the settings of a previously configured network, click Edit.

Click OK to establish a Wi-Fi connection. Once the connection is established, you can unplug the USB Cable.

Wireless Setup tool