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BASIC Stamp® HomeWork Board™ USB
Single (555-28188) or 10-pack (#28188)

This economical development platform with a surface-mount BASIC Stamp 2 microcontroller module was designed with beginners and student budgets in mind; the 10-pack perfect for outfitting a classroom. It is compatible with *What's a Microcontroller?*, *Robotics with the Boe-Bot*, and most other Stamps in Class tutorials. See the Program Overview link at www.parallax.com/education for complete details.

Features

- Built-in, surface-mount BASIC Stamp 2 microcontroller

- BASIC Stamp I/O pins plus power connections are brought adjacent to a 2" x 1 3/8" breadboard.

- Built-in 220-ohm series resistors between the I/O pins and breadboard for a bit of protection in case of wiring errors

- On-board regulator delivers up to 500 mA of current for BS2 and breadboard circuits

- LED connected to the BS2's EEPROM clock line shows when a program is running

- Reset button

- 9 V snap-style battery clip with strain-relief holes to make it easy to strap the battery in place for mobile applications

- Grounded 0.125 in (3.18 mm) corner mounting holes, at 3.7 x 2.75 in (9.5 x 7 cm) on centers

- 4 peel-and-stick rubber PCB feet included

Application Ideas

- BASIC Stamp-related homework assignments
- Dedicated science fair, contest, or hobby projects
- Affordable 'nodes' in a BASIC Stamp 2 network

Key Specifications

- Power requirements: 9 V battery; BS2 requires 7 mA running, 50 µA in sleep

- Communication: USB mini-B to onboard USB to RS-232 converter

- Operating temperature: 32 to 158 °F (0 to 70 °C)

- Dimensions: 3.05 x 4 in (7.75 x 10.16 cm)

Additional Items Required

- USB A to Mini-B cable (#805-00006)

- 9 V battery

- PC running Windows 2K/XP/Vista/7 for the BASIC Stamp Editor software. USB drivers are included with the software installer which is a free download from www.parallax.com/basicstampsoftware
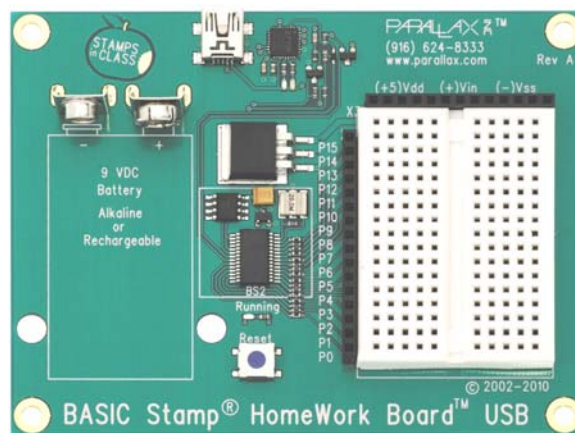
BASIC Stamp HomeWork Board Features
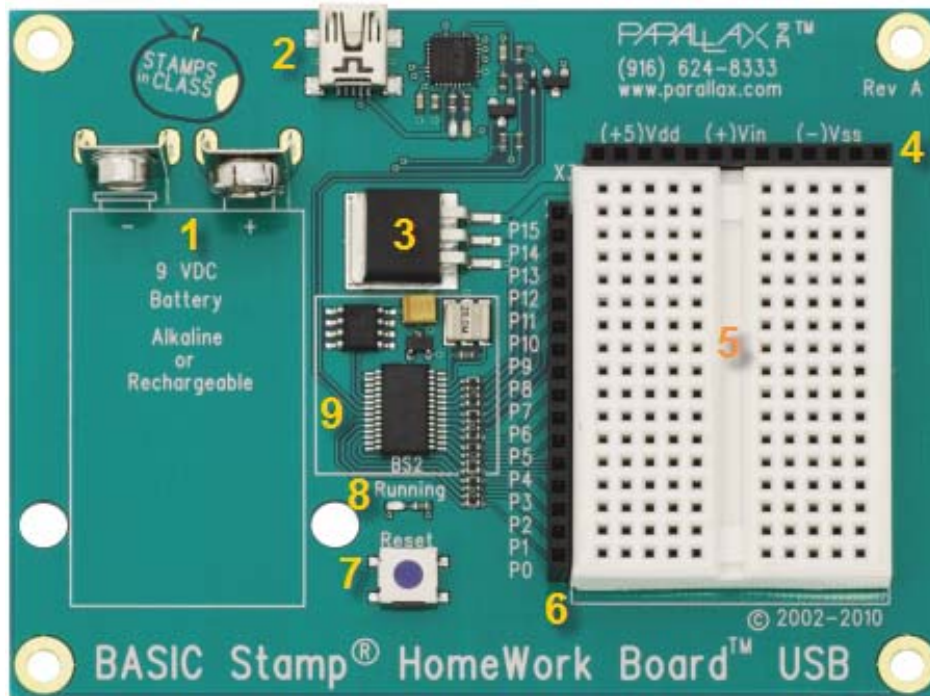
1. **9V Battery Clip:** You can use alkaline or rechargeable 9-volt batteries. Disconnect the battery to turn off power to your board.

2. **USB Programming Connector:** This is a USB Mini B socket and USB to serial (RS-232) circuitry for programming and for two-way serial communication between the BASIC Stamp and your computer. The required USB drivers for Windows were included in the BASIC Stamp Editor software installer; see the USB Drivers page at www.paralllax.com/usbdrivers for more information.

3. **Voltage regulator:** Supplies regulated 5 V, up to 500 milliamps with a 9 V battery. This supplies the BASIC Stamp and sockets labeled Vdd for circuits you will build on the breadboard area

4. **Power header (X3):** The sockets labeled (+5)Vdd connect to +5 VDC, (+)Vin connects directly to the power supplied to the board by the battery clip (+9 VDC typical), and (-)Vss connects to 0 V (ground).

5. **Breadboard:** The breadboard has metal clips that run underneath the white plastic board in a horizontal fashion. Each strip connects a 5-socket group, with two groups to each row, separated by a center trench. Wires or legs of components plugged into the same 5-socket group will be electrically connected. Components with many legs (such as pushbuttons or ICs), are placed in the middle of the board so that half of the legs are on the left side and half are on the right side of the trench. Note: Always disconnect power before building or modifying circuits!

6. **I/O Pin Access Header (X4):** The BASIC Stamp module's 16 I/O pins, labeled 0 to 15, are connected to this header, so you can conveniently connect to your breadboard circuits. On this board, there are 220-ohm resistors placed between the header and the BASIC Stamp I/O pins to help prevent damage in case of a wiring mistake.

7. **Reset Button:** The reset button can be used to restart your BASIC Stamp without having to cycle the power. This saves wear-and-tear on the battery clip for simple program restarts. Some advanced programming techniques use the reset button and the BASIC Stamp EEPROM as a way to toggle between different program functions.

8. **Running Indicator LED:** This LED will light up when a BASIC Stamp program is running. It is not a power indicator LED.

9. **BASIC Stamp 2:** The components of a BASIC Stamp 2 module are built directly onto the board. It connects the BASIC Stamp to the programming connector, power, the running indicator LED, reset button, and I/O pin header.

BASIC Stamp Resets when Connecting USB

When you connect HomeWork Board USB to a PC, the computer's operating system typically resets the BASIC Stamp several times as it tries to determine if a new plug-and-play device was just connected. Disconnecting the board may also cause a reset.

Each time a BASIC Stamp is reset, all program variables are cleared, and the program starts from the beginning. For tips on writing programs that can save variable values to EEPROM so they are not lost during resets, see the article "USB Resets BASIC Stamp" in the BASIC Stamp Editor Help file.

Resources and Downloads

- BASIC Stamp Editor programming software (free), which contains the Getting Started tutorial, *BASIC Stamp Syntax and Reference Manual*, and *What's a Microcontroller?* text: www.parallax.com/basicstampsoftware

- The latest version of "Getting Started with Stamps in Class" with HomeWork Board USB support may be browsed online at www.parallax.com/go/BASICStampStartHelp.

- USB Drivers: The BASIC Stamp Editor software contains USB drivers for most Windows systems. You can also check for the latest version of these driver sat www.parallax.com/usbdrivers.

- Information about the BASIC Stamp family of microcontroller modules, including a comparison chart: www.parallax.com/basicstamp

- Free, moderated discussion forums: http://forums.parallax.com

- Free educational tutorials and mini-projects for BASIC Stamp 2 programming, and other resources for students and Educators: www.parallax.com/education; education@parallax.com.

- "How To—The Basics of Breadboarding" and other YouTube videos: www.parallax.com/go/videos

- Free Technical Support: support@parallax.com, or call toll-free in the Continental US: 888-99-STAMP, all others call 916-624-8333.

Quick-Start Guide

Step 1

Download and install the latest version of the free BASIC Stamp Editor software (v2.5.3 or higher) from:
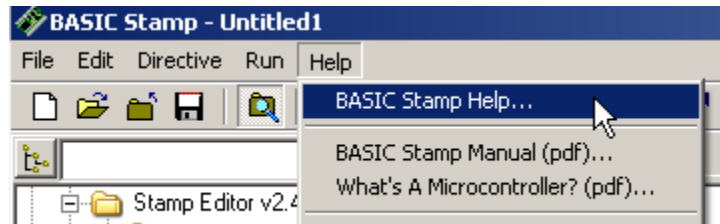
www.parallax.com/basicstampsoftware

...accepting all defaults. Note: Do not connect your hardware until you have followed the directions in Step 2 below.
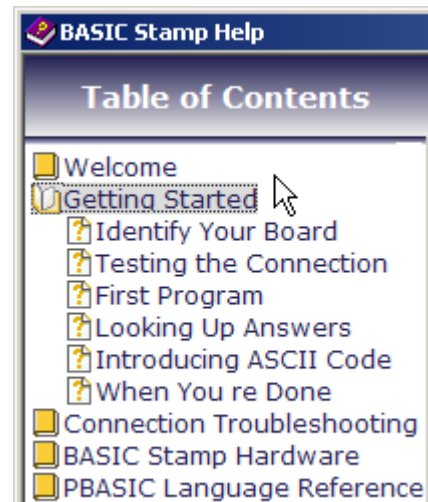
Step 2

Open the BASIC Stamp Editor Software, and select BASIC Stamp Help from the Help menu.

Step 3

Click on the Getting Started link in the Help file, then follow the directions in the tutorial for connecting your board testing your programming connection.

NOTE: The latest version of "Getting Started with Stamps in Class" with HomeWork Board USB support may be browsed online at www.parallax.com/go/BASICStampStartHelp.

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