ADB-USB Wombat Input Converter Instructions

The Wombat can be used as a USB to ADB translator (USB keyboard and mouse with a legacy ADB-equipped computer), or as an ADB to USB translator (legacy ADB keyboard and mouse with a modern USB computer). The required cable connections and jumper settings are different for these two modes.

The Wombat board has three I/O connectors:

- CON1 is USB Host (USB type A) connector, for USB keyboards and mice
- CON2 is a USB Device (USB type mini B) connector, for connecting the Wombat to a USB host computer
- CON3 is a bidirectional ADB connector, for ADB keyboards and mice or for connecting the Wombat to an ADB host computer

1. ADB to USB

This mode enables ADB keyboards and mice to be connected to a modern USB-based computer.

- Set the Wombat board's jumper to ADB input mode, as shown in the photo.
- Connect a USB-A to USB-Mini-B cable to the Wombat at CON2, and plug the other end of the cable into the host computer's USB port.
- Connect an ADB keyboard or mouse to the Wombat at CON3. Or to use both an ADB keyboard and mouse simultaneously, connect the keyboard to the Wombat at CON3, and connect the mouse to the keyboard.
- Nothing should be connected to the Wombat board's USB-A host port at CON1.
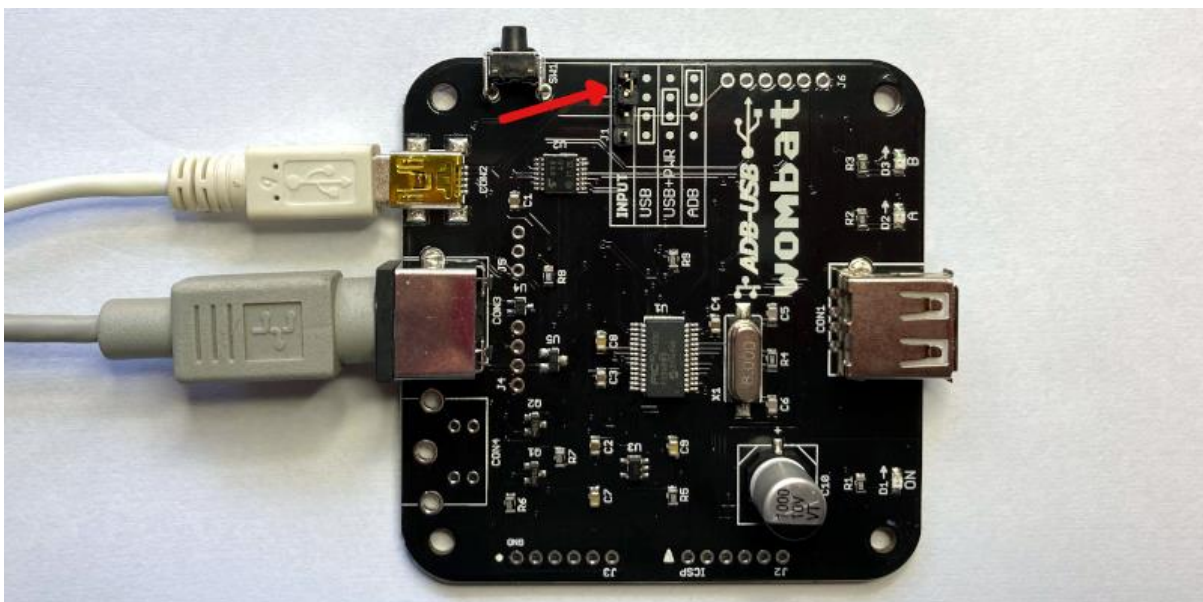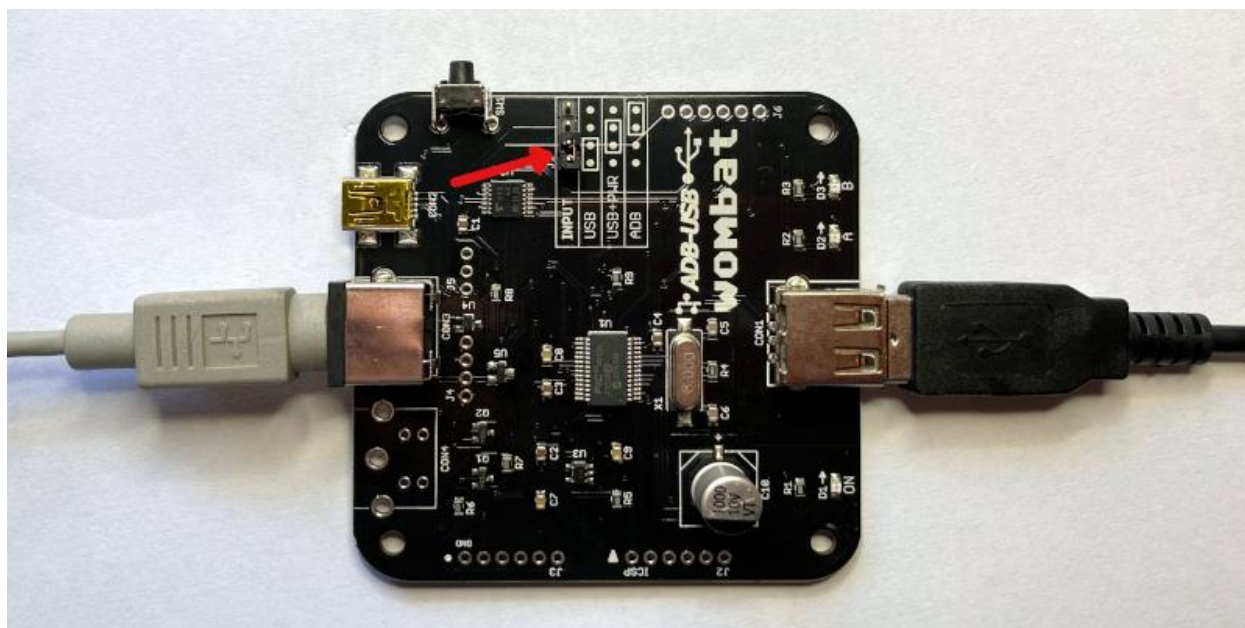
In this mode, power for the Wombat will be supplied from the USB host computer. The ADB peripherals will appear as standard HID input devices to modern Windows, OSX, and Linux computers. No special drivers or other software are needed. The Wombat supports one ADB keyboard and one ADB mouse.

2. USB to ADB

This mode enables USB keyboards and mice to be connected to a classic ADB-based Macintosh, Apple IIgs, or NeXT computer.

- Set the Wombat board's input jumper to USB input mode, as shown in the photo.
- Connect an ADB cable to the Wombat at CON3, and plug the other end of the cable into the computer's ADB port.
- Connect a single USB keyboard or mouse directly to the Wombat at CON1, or a standard USB hub at CON1 can be used to connect both a keyboard and a mouse simultaneously.

When in this mode, power for the Wombat will be supplied from the computer's ADB port. The Wombat supports one USB keyboard and one USB mouse.

Standard bus-powered USB hubs are recommended. Some externally powered USB hubs (with their own independent power supply) can backfeed power into the Wombat even when it's off, causing problems.

Right Click Behavior –

Most ADB mice had only one button, so the USB mouse's right button is handled one of two ways. Macintosh mode sends a control + click event to the host, which opens context menus in Mac OS 8 and

later. NeXT mode sends a true right click event to the host. The default is Macintosh control + click mode. Toggle between the two modes by clicking the USB mouse wheel button (button 3).

Mouse Wheel Behavior –

ADB mice did not have a mouse wheel. USB mouse wheel movements will send up/down arrow key events to the host. This works well for document scrolling and file dialogs. If necessary, this "mouse wheel arrow keys" behavior can be disabled using the custom key mapping tool, described later.

Power Key –
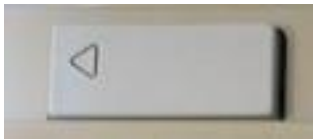
Original ADB keyboards had a power key – a square or rectangular key with a triangle logo that could be used to turn on some later models of ADB Macintosh computers, or as a Reset key on Apple II computers. There's an equivalent button on the side of the Wombat board that will function as a substitute power key, even when the computer is off. The button's electrical behavior is the same as the power key on an original ADB keyboard.

For convenience when using USB to ADB mode, the PRINT SCREEN key or F13 key on a USB keyboard can also be used as a substitute power key. Because these are software-mapped keys, as opposed to the hardware button on the Wombat board, PRINT SCREEN and F13 will only function when the Wombat is already powered on. These software keys may be convenient for rebooting or resetting the host computer, which is typically done with Control-Command-Power or Control-Power depending on the computer model.

3. USB to ADB with Standby Power

This mode enables USB keyboards and mice to be connected to a classic ADB-based computer, while powering the Wombat from an auxiliary standby power source instead of the computer.

- Set the board's input jumper to USB+PWR mode, as shown in the photo.
- Connect a standard 5V USB charger to the board's USB-B port at CON2.
- Connect an ADB cable to the Wombat at CON3, and plug the other end of the cable into the computer's ADB port.
- Connect a single USB keyboard or mouse directly to the Wombat at CON1, or a standard USB hub at CON1 can be used to connect both a keyboard and a mouse simultaneously.
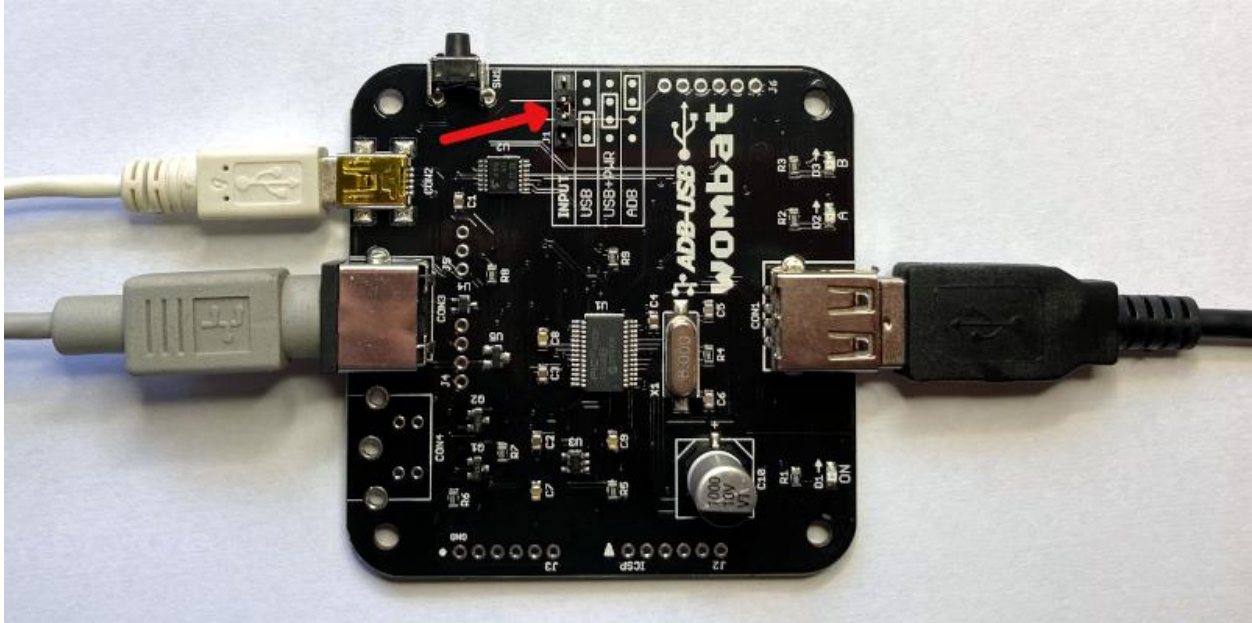
When in this mode, power for the Wombat will be supplied from the auxiliary power source, enabling the Wombat to keep running even when the computer is off. This enables the software-mapped keys PRINT SCREEN and F13 on a USB keyboard to be used as a power button to turn on a Macintosh computer, assuming the computer has a power supply that supports keyboard power switching.

Note: the hardware button on the side of the Wombat board can also be used as a power button to turn on a compatible Macintosh computer, and this method does not require standby power.

If the input jumper is set to USB+PWR mode, then the auxiliary power source **must** be connected and turned on. A failure of the auxiliary power source will result in errors, even if the computer is turned on.

4. LED Status Codes

The **A** and **B** LEDs on the Wombat board display status and error information. (The **A** LED is labeled **RUN** on some boards). During normal use, the **A** LED will turn on when the Wombat has a working data connection (ADB or USB) to the host computer. The **B** LED will blink whenever there's keyboard or mouse activity.

During a firmware update, both LEDs are used to indicate update status. See firmware updates for more details.

5. Help Commands

You can interact directly with the Wombat by typing help commands on an attached ADB or USB keyboard. Open an empty text document or command prompt on your computer. The Wombat will "type" its responses to your commands, so they appear on the screen.

Control-Shift-Capslock-V – Displays the firmware version number

Control-Shift-Capslock-I – Displays the USB vendor and product ID or ADB handler ID of the keyboard and mouse

Control-Shift-Capslock-C – Enters keydump mode. While in this mode, the USB key code is displayed for each key that you press, along with the corresponding ADB key code it's mapped to (or vice-versa). This can be helpful for troubleshooting key mapping problems.

Control-D – Exits keydump mode.

Control-Shift-Capslock-T – Cycles between key mapping types US-GENERIC (ANSI QWERTY), ISO-GENERIC (UK and other non-US QWERTY), ISO-FR (AZERTY), and ISO-DE (QWERTZ). See the section on international keyboards for more details.

Control-Shift-Capslock-G – Shows the currently active key mapping type. See the section on international keyboards for more details.

6. Firmware Updates

The Wombat firmware can be updated to fix bugs and add new features. For the latest information please see the Firmware Updates section on the web site.

7. International Keyboard Support

Non-US international keyboards are supported by the Wombat. These include country-specific keyboard layouts like British, Canadian French, Danish, Greek, AZERTY variants, QWERTZ, and others. For the latest information please see the International Keyboards section on the web site.

8. Custom Key Mappings

Create a customized mapping table for USB-to-ADB and ADB-to-USB translation. Change which keys behave as Command and Option, reassign the function keys to new purposes, or repurpose the power key. See the Wombat Keymap Tool on the web site for details.