

TouchPad User Guide

We recommend watching the video tutorial available at www.fourboards.co.uk/touchpad

About TouchPad

TouchPad can be connected to any device that is compatible with USB HID keyboards. It can be connected via a micro USB cable to any USB port on your device. TouchPad allows up to 5 sets of 36 keyboard command sequences to be configured and executed, with up to 5 key combinations in each (Using the On The Go programmer, more using Arduino). Most programs have pre-defined keyboard shortcuts or allow the user to configure their own. By setting up TouchPad to produce these shortcuts, you can control program functionality directly from TouchPad. TouchPad is Arduino compatible for users wishing to add more complex functionality to keys (longer Keyboard sequences, Mouse, MIDI, Serial...).

IMPORTANT * * * Before plugging in your TouchPad * * * READ THIS

- When in the programming modes, TouchPad types instructions on the screen. Before entering these modes make sure you are in a blank text editor, otherwise these keystrokes could **edit** or **delete** text or files on your computer! If TouchPad is typing and you are not in a blank text editor, it is best to unplug TouchPad.
- When connecting to Mac computers for the first time, a keyboard setup window will appear, this can be closed immediately.
- TouchPad relies on capacitive touch to detect key presses. This is calibrated on start up between the power LED blinking and being on. It is recommended that TouchPad is in the location it will be used and that you do not touch TouchPad during this process.
- Capacitive touch can be affected by changes in the surrounding environment. If TouchPad is affected by this and starts malfunctioning, simply remove and reapply power to force a calibration or leave it for 8 seconds, after which a calibration will automatically be performed.

Customising TouchPad

TouchPad has been designed to offer flexibility in how it is used. You can either draw on the included transparent overlays using a permanent marker (skip to step 3) or use the template provided to digitally produce a custom overlay design (start at step 1).

1. Visit www.fourboards.co.uk/touchpad to download the TouchPad template in a DXF or SVG format. From here, use the software of your choice (we recommend inkscape, which can be downloaded for free from www.inkscape.org) to customise the overlay.
2. Once you have finished designing, print the template onto transparency film, cut around the outline and use a standard hole punch to create the location holes.
3. Attach your overlay to the TouchPad's location posts. If you are customising a transparent overlay, you can now draw on the keys with a permanent marker.
4. You may need to adjust the separation of the location posts to match your location holes. This can be done by loosening the rubber feet, adjusting the posts, and then re-tightening the rubber feet.

Changing overlays can trigger key presses, we advise TouchPad is unplugged for this.

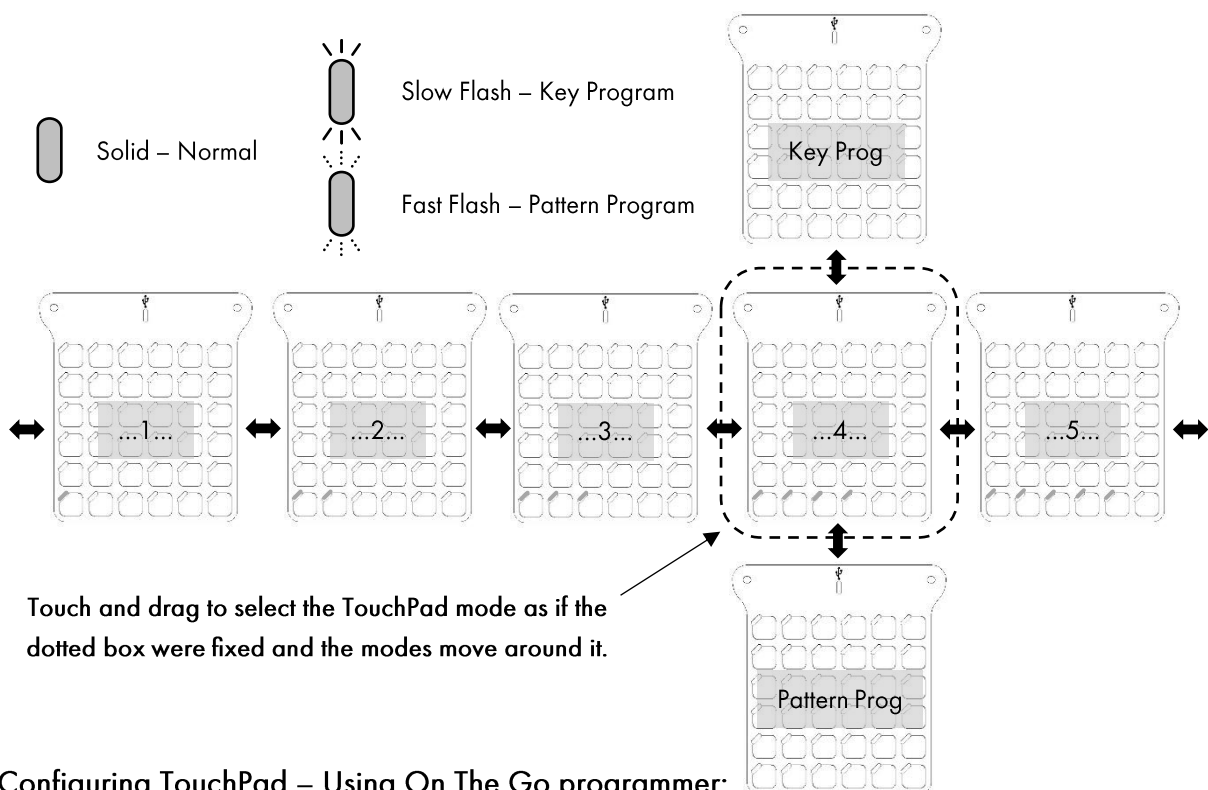
TouchPad's Modes

By default, TouchPad is in a Normal operating mode, in this mode:

- Pressing and releasing keys will cause the assigned keystrokes for the current command set and pressed key to be sent to your device. **Keystrokes are sent when you release the key.**
- Pressing and swiping sideways on TouchPad will change the current command set. The display will show the new command set's pattern until a key is pressed.

The following modes can only be entered upon initial power up (before any keys have been pressed), you should make sure you are in a blank text editor before entering these modes. If you have already pressed a key you will need to unplug TouchPad and then plug it back in to enter these modes:

- Pressing and swiping up on TouchPad will enter the pattern programming mode for the current command set, touch keys to toggle them, press and swipe down on TouchPad when you are done.
- Pressing and swiping down on TouchPad will enter the key programming mode for the current command set. Make the changes you need and then press and swipe up on TouchPad when you are done.



Configuring TouchPad – Using On The Go programmer:

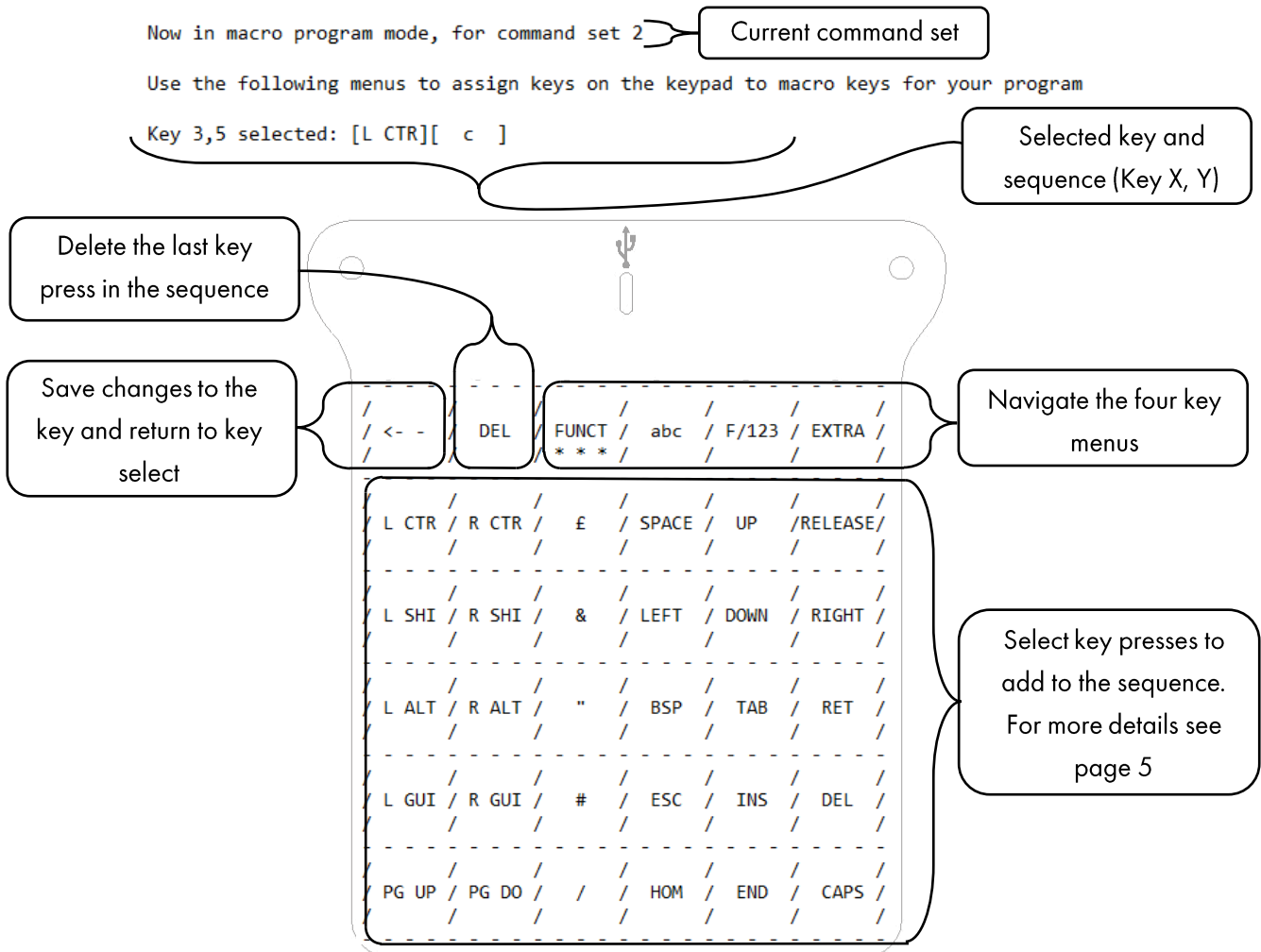
Before entering programming modes, open a basic text editor such as Note Pad (Windows) or Text Edit (Mac). It is important ALL characters have the same width. This is standard in Note Pad on windows but in Text Edit on Mac you will need to go to [Format > Make Plain Text].

In **Key Programming mode**, the diagram typed out by TouchPad assigns programming functions to TouchPad keys. To start programming a key, touch the TouchPad key you want to program and use the TouchPad keys corresponding to the menu functions shown on screen to assign functionality. When you have finished editing that key, return to edit more keys by pressing the top left key or return to Normal

operating mode by touching and swiping up on TouchPad.

Factory default: All keys in all command sets have no functionality.

The diagram below should help you to understand the information typed out whilst in Key Program mode:



In **Pattern Programming mode**, only instructions will be typed out. This mode allows you to configure a defining pattern for the current command set using the key LEDs. This pattern will be displayed when TouchPad is first plugged in and when you switch command sets. It will extinguish after the first key press in that command set. To program the pattern, touch keys to toggle their LED (you can't toggle the LEDs in the bottom row, this is pre-set to the command set number). When you are done, return to Normal operating mode by touching and swiping down on TouchPad.

Pre-set bottom row: 1,2,3,4 or 5 LEDs are lit based on the current command set.

Configuring TouchPad – Using Arduino:

TouchPad is controlled using an ATmega32u4 microprocessor. This means the Arduino IDE can be used to program more complex sequences of key strokes as well as mouse movements, MIDI and Serial commands. To use TouchPad with Arduino:

1. Install the latest version of the Arduino IDE (www.arduino.cc/en/Main/Software).

2. Download the zip file containing TouchPad source code and Arduino hardware definitions from www.fourboards.co.uk/touchpad.
3. Follow the instructions in the README file located in the folder to install TouchPad in the Arduino IDE.
4. Open the Touch_Pad sketch and then edit the file as described by the instructions at the top of the page.

Please note: The key functionality defined in the Arduino code will only be executed if the corresponding command set and key is not assigned to any functionality using the On The Go programmer.

To upload your modified TouchPad firmware:

1. Plug in TouchPad via the micro USB cable.
2. In the Arduino IDE select Tools/Board/Four Boards TouchPad.
3. In the Arduino IDE select Tools/Port/[The COM port TouchPad is on].
4. Press Upload (Right hand arrow).

Now you're ready to go with your custom TouchPad firmware.

TouchPad Troubleshooting

1. The text and menus printed by the TouchPad in programming modes do not make sense:

This is likely to do with how quickly your computer can process keyboard commands. Some devices struggle to keep up with the TouchPad. To fix this you can increase the compatibility level by touching and swiping down on the TouchPad whilst in Key Programming mode. After doing this the menu should be reprinted correctly. If it still does not make sense, increase the compatibility level further by touching and swiping down on the TouchPad again whilst still in Key Program mode. Note: compatibility level can be reset using "R C" in the EXTRA menu of any key. You must exit Key Program mode for compatibility level to be reset.

2. The shortcut you've setup doesn't work:

Use a keyboard tester website such as www.keyboardtester.com to ensure TouchPad is producing the keystrokes you require. TouchPad will exhibit different behaviours based on your operating system language settings. You will not notice this using the OTG programmer but note that the Arduino Keyboard library is based around the US keyboard layout (By default TouchPad uses a modified version for UK keyboard layout).

3. You are having trouble uploading to TouchPad from the Arduino IDE:
 - a. Check you have selected the correct COM port (it should say TouchPad next to it in the port selection menu).
 - b. Hold down the reset button on the back of TouchPad, hit upload in the Arduino IDE, when Arduino says "Uploading" in the bottom left hand corner release the reset button.
4. You are having trouble using the Arduino IDE:

Visit www.arduino.cc/en/Guide/Troubleshooting for general Arduino help.

TouchPad Key Functionality

| Main Menu | |
|-----------|--|
| < - - | Return to the key selection menu. |
| DEL | Delete the last key press in the sequence. |
| FUNCT | Function menu: contains modifier keys and symbols. |
| abc | Abc menu: contains alphabet keys and symbols. |
| F/123 | F/123 menu: contains number keys, function keys and symbols. |
| EXTRA | Extra menu: contains symbols and delay, repeat, reset compat functions. |

| Function Menu | | | | | |
|---------------|---|-------|---------------|-------|-----------|
| L CTR | Left Control | R CTR | Right Control | SPACE | Space |
| L SHI | Left Shift | R SHI | Right Shift | BSP | Backspace |
| L ALT | Left Alt | R ALT | Right Alt | TAB | Tab |
| L GUI | Left GUI | R GUI | Right GUI | RET | Return |
| PG UP | Page Up | PG DO | Page Down | ESC | Escape |
| UP | Up Arrow | LEFT | Left Arrow | INS | Insert |
| DOWN | Down Arrow | RIGHT | Right Arrow | DEL | Delete |
| HOM | Home | END | End | CAPS | Caps Lock |
| RELEASE | Causes all keys that are currently pressed to be released, displayed as a lower-case r in the key sequence. By default, all keys are released at the end of the sequence. | | | | |
| GUI | The operating system defines the GUI keys functionality. On windows this is the windows key and on Mac this is the command key. | | | | |

| Extra Menu | |
|-------------------------------|---|
| 1mS, 10mS, 100mS, 1S, 5S, 10S | Causes the respective delay to be added to the key sequence. |
| x2, x3, x4, x5, x10, x20 | Causes all the keys prior to the repeat function to be repeated the respective amount of times (keys must be released first). |
| R C | Causes the compatibility setting to be reset (programming mode should be restarted for this to take effect). |