

KEYS OF KINGS - TWOKEY INSTRUCTIONS

Parts List

Case Components

- 01 x Stainless Steel Plates (Top & Bottom)
- 04 x Stainless Steel M3 Standoff - 16mm
- 02 x Stainless Steel M3 Standoff - 12mm
- 10 x Stainless Steel M3 Screw - 6mm

Main Components

- 01 x Keys of Kings - Twokey PCB
- 01 x Rotary Encoder (PEC11R-4015F-S0024)
- 01 x 44m Aluminum Encoder Knob (Optional, may not be included)
- 02 x Gateron Switch (Optional, may not be included)
- 02 x Black Translucent Keycap (Optional, may not be included)

Circuit Components

- 01 x Pro Micro Microcontroller
- 01 x Reset Switch (MJTP1230)
- 01 x Piezo Transducer (PKMCS0909E4000)
- 02 x 10k Ohm Resistor
- 02 x 1k Ohm Resistor
- 01 x 330 Ohm Resistor
- 04 x 0.1uF Capacitor
- 02 x 0.01uF Capacitor
- 03 x 1N4148 Diode
- 02 x Orange LED (2.2v)
- 04 x RGB LED (WS2812B)

What you will need

- Soldering Iron
- Solder
- Safety Gear for Soldering (eye protection, ventilation, etc.)
- Tweezers & Wire Cutters
- Micro USB Cable
- Good tunes and vibes
- Twokey hex file (available on www.keysofkings.com)
- Software to flash Pro Micro (QMK Toolbox recommended)
- If desired, sand paper, polishing compound, paint, etc.

Plate Finish

There are many options for the final look of the Top and Bottom Plates. You can choose to leave it as for a more industrial/steampunk look or sand, shine, or paint as you please.

Installation Instructions (Video available on website)

!!!WARNING!!! Please follow this list in order. Deviating may result in not being able to finish assembling the PCB.

TRIM ALL LEADS SO THEY ARE NEAR FLUSH WITH HOLES BEFORE SOLDERING

1. **Solder Capacitors** - Bottom Side
 - a. 4 x 0.1uF Capacitors
 - i. Located by each WS2812B RGB LED
 - b. 2 x 0.01uF Capacitors
 - i. Located below Pro Micro
2. **Solder Resistors** - Bottom Side
 - a. 1 x 330 Ohm Resistor
 - i. Located top right of Pro Micro
 - b. 2 x 10k Ohm Resistor
 - i. Located below Pro Micro by 0.01uF Capacitors
 - c. 2 x 1k Resistor
 - i. Located at Bottom
3. **Solder Diodes** - Bottom Side
 - a. 3 x 1n4148 Diodes - *Directional: Thick Band on Diode on Thick PCB Marking*
 - i. Located above Switch location
4. **Solder RGB LEDs** - Bottom Side - Can be tricky, keep solder to a minimum
 - a. 4 x WS2812B - *Triangle Marking on Triangle Marking*
 - i. Located at each corner of the PCB
5. **Solder Reset Switch** - Bottom Side
 - a. 1 x MJCP1230
 - i. Below the Keys of Kings Logo on the left
6. **Solder Piezo Transducer** - Bottom Side - Can be tricky, keep solder to a minimum
 - a. 1 x PKMCS0909E4000 - Locate circle on component so its at the top left on PCB
 - i. Located to the right in the middle of the PCB
 - b. NOTE: The 100uF 1206 Capacitor above Piezo is optional and not included
7. **Solder Rotary Encoder** - Top Side - Make sure to trim leads flush
 - a. 1 x PEC11R-4015F-S0024
 - i. Top Side at the top of the PCB
8. **Solder Pro Micro Headers to Pro Micro**
 - a. Break or cut the headers into 4 sections of 5 pins
 - b. Solder the shorter header size into the Pro Micro
 - c. Skip the two pins in the middle of Pro Micro when soldering

9. **Solder Pro Micro to Twokey PCB** - Bottom Side
 - a. Trim Long leads Flush
 - b. Make sure Micro USB Port is facing OUT
10. Screw 12mm Standoffs into PCB - Standoffs on Bottom Side
11. **DOUBLE CHECK ABOVE IS ALL SOLDERED NO GOING BACK AFTER THIS STEP**
12. Consume Prayer Potion and Monkfish
13. **Plug in Micro USB Cable to verify the Twokey/Pro Micro turns on**
 - a. Green LED on Pro Micro should turn on. If not, double check header solder job
 - b. RGB Lighting will not turn on at this point, needs to be programmed
 - c. Piezo Transducer won't seduce you with sweet tones (yet)
14. Unplug Micro USB Cable
15. Push Switches into Top Plate
16. *Verify no leads or solder is touching the Top Plate!*
17. **Solder Switches into PCB** - Top Side
 - a. Make sure the Switch sits flush and evenly on the Plate
 - b. Make sure the Switch sits flush on the PCB
18. **Put LEDs into Switch and Solder** - Top Side
 - a. 2 x Orange LED - Long lead is POSITIVE, from the top of the PCB: Long lead goes into the LEFT hole. Diagram on PCB.
19. **Screw PCB to Bottom Plate**
 - a. Don't forget the washers
20. **Screw Top to Bottom Plate**
 - a. 4 x 16mm Standoffs
21. Plug in Micro USB Cable to verify Orange LEDs turn on
22. **Installation complete**

Programming Pro Micro

1. Download QMK Toolbox
2. Download the hex file for the Twokey (www.keysofking.com)
3. Open QMK Toolbox
4. Choose Twokey hex file from within QMK Toolbox
5. Plug in the Twokey
6. Press and release the RESET Switch on the Twokey
7. Press Flash in QMK Toolbox (you have about 8 seconds to do so)
8. QMK Toolbox will install the hex file and restart your Twokey, though it's recommended to unplug for 10 seconds afterwards
9. If installation is complete; RGB LEDs will be RED and the Piezo Transducer will make a start up sound
10. Programming Complete

Fine Tuning your Twokey

You can fine tune the color, brightness, and animation of the RGB LEDs (WS2812B). This is done so through specific key presses of the Twokey. The same is true for sounds the Piezo Transducer can make.

If you wish to change the function of any of the keys or encoder, you will need to do your own programming and compiling. That is a whole separate topic and not covered here. Check out the QMK Configurator online.

The orange LEDs are always on when the Twokey is on and is not controllable.

LAYERS

[INSERT PICTURE OF TWOKEY TOP VIEW]

To change layers Press and Hold necessary key. This will take you to layer 1, 4, or 7. While still holding the key you pressed previously, now press one of the other two keys. Release held key. You are now at whichever Layer you selected. Press the Encoder to return to default Layer. Layers listed below.

Layer 0 is the default layer, always return here.

Encoder Spin is set to Volume Up and Down in all Layers

LT = (Press and Hold for this) ~ Normal key press

TRNS = Transparent, you will be pressing and holding this key when seen below

1. LAYER 0

- a. LT(Layer 1) ~ Mute
- b. LT(Layer 4) ~ Play
- c. LT(Layer 7) ~ Next Song

2. LAYER 1

- a. TRNS
- b. Layer 2
- c. Layer 3

3. LAYER 2

- a. Layer 0
- b. RGB ON/OFF
- c. RGB Mode (Animations, Static, etc.) Cycle Throughs

4. LAYER 3

- a. Layer 0
- b. RGB Brightness - Increase
- c. RGB Brightness - Decrease

5. LAYER 4

- a. Layer 5
- b. TRNS
- c. Layer 6

6. LAYER 5

- a. Layer 0
- b. RGB Saturation - Increase
- c. RGB Saturation - Decrease

7. LAYER 6

- a. Layer 0
- b. RGB Hue - Increase
- c. RGB Hue - Decrease

8. LAYER 7

- a. Layer 8
- b. Layer 9
- c. TRNS

9. LAYER 8 - Piezo Transducer

- a. Layer 0
- b. Audio Click Toggle (On/off) Makes a sound whenever you press a key
- c. Audio Toggle (On/off) Makes sound on long key presses and layer changes

10. LAYER 9

- a. Layer 0
- b. RESET Twokey
- c. EEPROM Reset

COMPLETE

Thank you for following these instructions. If you have any questions, visit www.keysofkings.com for more help.

The Twokey is a small media device meant for volume control and playing through your favorite tunes. Its enclosure is made with all Stainless Steel parts. It packs plenty of RGB and LED lighting and a Piezo Transducer for playing with keyboard side sounds. This was a fun little device to design and make in house, so I hope you enjoy it!

Yours Truly,
King Icewind

Follow Keys of Kings on Instagram, Facebook, and Youtube!