V3 / CODE V3 Comprehensive User Guide (Firmware 0.13 ~ 0.17)

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This guide is for **V3** and **CODE V3** keyboards running 0.13 to 0.17 firmware versions. That is all 87/88/104/105-key keyboards - both CODE backlit and non-backlit V3 keyboards.

You can check for the latest firmware available here: Keyboard Firmware Updates.

If you're not sure which version you have currently, please update to the latest version, then come back and find the user guide that corresponds to that version.

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Setting up for the first time

1. Locate the Type-C USB cable included in the box
2. Gently twist the cable to roll it under the cable channel teeth - smashing the cable past the teeth or ripping it out can damage the cable

insulation
3. Plug the Type-C USB end firmly into the port on the bottom of the keyboard
port_bottom.png
4. Plug the USB type-A port end into the port on your computer

Selecting your dipswitches

Warning: The dipswitch settings require a power cycle to initiate the new changes – it's a good habit to always unplug the keyboard when making changes to the dipswitch to ensure that the changes made are reinitialized and working properly.

1. Turn your keyboard over to locate the dipswitches
dip_bottom.png
2. Use a pen or small screwdriver to flip the switches from off to on

What do these dipswitches do and why would you want to use them?

[The keyboard layout switches are SW1 and SW2]

- SW1 off, SW2 off – QWERTY mode – **Programmable**

  dip_000000.png
  qwerty.png
  This is the default state of the keyboard, typing will be in QWERTY layout, the keyboard is available to be programmed

- SW1 on, SW2 off – QWERTY mode – **Non Programmable**

  dip_100000.png
  qwerty.png Typing will be in QWERTY layout, the keyboard cannot be programmed. This setting is used if you want to 'lock' yourself out of accidentally programming (or reprogramming) the keyboard.

- SW1 on, SW2 on – Mac Mode

  dip_110000.png
  mac-mode.pngThis will swap the option/command key mappings (alt/win on a PC) at a firmware level
  *You do not **need** to use Mac Mode on a Mac, you can also change these key mappings in **keyboard settings** in your operating system settings. Additionally you can also change this using the 3rd party app **Karabiner** (https://pqrs.org/osx/karabiner/)*

[The scroll lock switch is SW3]

- SW3 off – The scroll lock LED indicator will display which virtual layer you are on.

  dip_3off.png
  scroll_lock_led_off.png
  Note: when using this mode you cannot use scroll lock.

- SW3 on – scroll lock LED indicator will display the state of the scroll lock

  dip_3on.png
  scroll_lock_led_on.png
  Works just like a standard scroll lock key.
  Scroll lock function is not native to Mac OSX.

[The keyboard reset switch is SW4]

- SW4 off – Default state (not resetting)

dip_4off.png
This is the default state of the keyboard, it is not in a state of resetting

- SW4 on – This performs a keyboard reset
  dip_4on.png

  After setting SW4 to the “on” position and plugging the keyboard in, the keyboard will go through a reset process to wipe the memory stored in the firmware. This will clear any and all macros or remaps set up when programming the keyboard and return it to its default state.

  The reset process can be monitored by viewing the indicator LEDs, these LEDs will flash red, then change to solid blue, then change to solid green.

  To perform a reset;

1. Unplug the keyboard
2. Turn the keyboard over and set dipswitch SW4 to the "on" position,
3. Plug the keyboard back in
4. Wait for the reset cycle to complete
   the LED indicators will flash red, then go solid blue then go green -
   when they are green the reset is complete
5. Unplug the keyboard again
6. Set SW4 back to the "off" position
7. Plug the keyboard back in

Note: you cannot use the keyboard when SW4 is set to the “on” position.

[The Fn key switch is SW5]

- SW5 off – Enables the Fn key

  dip_5off.png
  fn.png

  This is the default state of the keyboard, onboard media functions and lighting controls are used with the Fn key enabled.

- SW5 on – Disables the Fn key

  dip_5on.png
  menu.png

  This will disable the Fn key. This setting allows you to restore the Menu key (“Windows Right-Click” also referred to as the “Context Menu”) to the keyboard.

  Why turn SW5 “ON”?
  This is useful when you prefer to have the Menu key present instead of the onboard functions. Maybe you do not need the onboard media controls or don’t use them, turning this switch on will gain you the use of the Menu key.

  *Note: if you are in a situation where you want **both** the Fn functions and also the Menu key- you have a few options.*

  You can move the Fn key (see instructions later on how to move the Fn and Pgm keys)- moving the Fn key location will allow the Menu key to be used

  You can access the context menu function on Windows by pressing Shift+F10

[The Pgm key switch is SW6]

Pgm is the **Program Key**

- SW6 off – Pgm key disabled

  dip_6off.png
  ctrl.png

  This is the default state of the *Right Control* key, the key works just like a regular right control key.

- SW6 on –Pgm key enabled, changes right control key to the Pgm (Program) key

  dip_6on.png
  pgm.png

  This will change the behavior of your right control key. When this key is enabled the right control key will be hidden from the operating system so you will not be able to use the right control key.

  Why turn SW6 "ON"?

  You will need to set SW6 "ON" to access the programmable features of the keyboard as you need the both the Fn and Pgm keys enabled to enter programming mode.

  Why turn SW6 "OFF"?

  Turning off the Pgm key will also restore the *Right Control* key functionality.

  If you are done programming your keyboard and don't want to accidentally overwrite your macros or remaps, or if you do not have a use for the programming functions and want to lock yourself out of programming the keyboard accidentally.

Using the onboard Functions (Fn)

Note: To use the onboard functions of the keyboard you need to make sure the Fn key is enabled by setting the dipswitch SW5 "OFF". Please see above for more information about the dipswitches.

Media functions

media_keys.png

- Fn + Insert = Play / Pause
- Fn + Home = Stop (this is not supported on Mac)
- Fn + Delete = Previous Track
- Fn + End = Next Track
- Fn + Page Up = Volume Up
- Fn + Page Down = Volume Down
- Fn + Pause = Mute
- Fn + F13 / Print Screen = Eject (Mac Mode only)

Backlighting functions

keyboard-backlit-V2.png

For backlit CODE models, this also enables lighting controls:

- Fn + F12 = Turns LED backlighting ON/OFF (CODE models only)
- Fn + F11 = Cycles through the 6 different brightness settings for backlighting (CODE models only)

Using the Virtual Layers (Fn + M, Fn + <, Fn + >, Fn + ?)

Note: To use the onboard functions of the keyboard you need to make sure the Fn key is enabled by setting the dipswitch SW5 "OFF". If you have SW3 "ON" you will not be able to see the indicator for which layer you're on. Please see above for more information about the dipswitches. You can assign your own custom color for the layer indicator LEDs, please see below for more information about LED indicator programming.

What is a virtual layer?

Our V3 keyboards are programmable, so you can remap keys and also set up macros. You may want to set up these remaps or macros for certain applications you use frequently to speed up your workflow. By using virtual layers you can have up to 4 separate 'layers' of remaps and macros and easily toggle between them.

Usage scenario: You do a lot of work in Photoshop and have set up some macros and key remaps to accelerate your workflow in this application. Setting up these macros and remaps on Layer 2 will allow you to easily hotkey into Layer 2 (**Fn + <**) where all of your settings are stored on this layer. When you are finished or working in a different application you can easily hotkey to a different layer with specific programming there, or simply to a clean layer where you won't accidentally hit any macros. This is just one example, but you can use these virtual layers however you'd like.

Example: If you press **Fn + ?** it will take you to Layer 4, and the scroll lock indicator will turn green letting you know that.

Switching Layers
virtual_layers.jpg

- **Fn + M** = Layer 1 (Default) (No LED lit)
- **Fn + <** = Layer 2 (RED LED indicator)
- **Fn + >** = Layer 3 (BLUE LED indicator)
- **Fn + ?** = Layer 4 (GREEN LED indicator)

Programming the LED indicator colors

Note: To program the LED indicators of the keyboard you need to make sure the Fn key is enabled by setting the dipswitch SW5 "OFF", and also making sure that the Pgm key is also enabled via SW6 "ON". Please see above for more information about the dipswitches.

Caps Lock, Scroll Lock and Num Lock

Note: 87 and 88 keyboards do not have a numpad so there is no Num Lock indicator. By default the Scroll Lock indicator is set to show you which virtual layer you're on, to change this to display the Scroll Lock state, set SW3 to "ON". There is no Scroll Lock nor Num Lock function in Mac OS so it will not work. Please see above for more information about the dipswitches.

led_programming.png

1. Make sure Fn and Pgm keys are enabled (see above for dipswitch information)
2. Enter LED indicator programming mode
   Press **Pgm + Scroll Lock** keys *(Black keys - The LED indicators will flash green confirming)*
3. Press the key of the corresponding indicator that you want to change
   For example if you want to change the color of the Caps Lock indicator, you will press the Caps Lock key (the indicator chosen will light up confirming) *(Yellow, Orange and Lavender keys)*
4. Adjust the color *(Red, green and blue keys)*
   Press **Fn + F6** repeatedly to cycle through 9 brightness settings of Red
   Press **Fn + F7** repeatedly to cycle through 9 brightness settings of Green
   Press **Fn + F8** repeatedly to cycle through 9 brightness settings of Blue
   Using different brightness to blend colors together to achieve your desired color;
   For example Red 9, Green 0, Blue 9 will get you purple.
5. Press **Pgm** to save the color *(Black key)*
6. Repeat steps 3 and 4 for the other indicators or press **Pgm + Scroll Lock** to exit the LED programming mode *(Black keys)*

Virtual Layer Indicators

Note: By default the Scroll Lock indicator is set to show you which virtual layer you're on, to change this to display the Scroll Lock state, set SW3 to "ON". There is no Scroll Lock function in Mac OS so it will not work. Please see above for more information about the dipswitches.

led_programming_layers.png

1. Make sure Fn and Pgm keys are enabled (see above for dipswitch information)
2. Enter LED indicator programming mode
   Press **Pgm + Scroll Lock** keys *(Black keys - The LED indicators will flash green confirming)*
3. Press the key combo of the corresponding Layer key that you want to change
   Fn + m for Layer 1 *(Orange key)*
   Fn + < for Layer 2 *(Lavender key)*
   Fn + > for Layer 3 *(Yellow key)*
   Fn + ? for Layer 4 *(Mint key)*
4. Adjust the color *(Red, blue and green keys)*
   Press **Fn + F6** repeatedly to cycle through 9 brightness settings of Red
   Press **Fn + F7** repeatedly to cycle through 9 brightness settings of Green
   Press **Fn + F8** repeatedly to cycle through 9 brightness settings of Blue
   Using different brightness to blend colors together to achieve your desired color;
   For example Red 9, Green 0, Blue 9 will get you purple.
5. Press **Pgm** to save the color *(Black key)*
6. Repeat steps 3 and 4 for the other indicators or press **Pgm + Scroll Lock** to exit the LED programming mode *(Black keys)*

Remapping Keys

Remapping keys allow you to map a key to a different location. This may be used for many reasons, one is that certain functions you use a lot might be more ergonomically comfortable to move closer to the home row (such as caps lock) or for utilizing a key not normally used often like Scroll Lock to do something more useful.

In this example we will be remapping our Caps Lock key to Esc. After remapping, when you press the Caps Lock key it will output Esc. Instead of having to reach high and to the left to hit the Esc key, now you can just hit the Caps Lock key.

Note: *You can remap up to 25 keys per layer*

programming_remap.png

1. Make sure Fn and Pgm keys are enabled (see above for dipswitch information)
2. Enter programming mode
   Press **Fn + Pgm** keys *(Black keys - The LED indicators will flash green confirming entrance)*
3. Press the trigger key you are wanting to remap *(Example: Caps Lock – orange key)*
   (indicator LED solid red to confirm trigger key acquired)
4. Press the target key you are wanting to assign to your trigger key *(Example: Esc – red key)*
   (indicator LED blink red once to confirm target key acquired)
5. Press **Pgm** to save the remap *(Black key)*
   (The LED indicator will flash green confirming save)
   Repeat steps 3, 4 and 5 for other keys you want to remap
   or
   press **Fn + Pgm** to exit programming mode *(Black keys - The LED indicators will flash green confirming exit)*

Macro Programming

Macro programming allows you to set up automated functions. This may be used for many reasons; you may want to launch often used applications from a hotkey (such as notepad or calculator). You may want to create a hotkey to automatically type out often used words or phrases. You may want to set up a macro to expedite filling out forms from a hotkey. These are just a few of the things you can do with macros.

In this example we will be setting up a macro to create a shorthand way of typing the word "keyboard" with the hotkey of **Fn + K**. After this macro is created, when you press the key combo **Fn + K** the keyboard will output the word "keyboard".

Note: Each macro can hold up to 32 keys (not including timers) and you can use up to 25 macros per layer. Triggers can be single keys or a combo up to 3 keys ("W" or "Fn + W" or "Fn + Ctrl + W").

Combo keys will be "released" before macro is sent. Avoid using keys such as Alt and OS/Win as your triggers - these keys will send an action to the OS before sending the macro – you can still use them in your macros, just be aware that these particular keys might produce unwanted results.

Layer swap keys cannot be programmed

programming_macro.png

1. Make sure Fn and Pgm keys are enabled *(see above for dipswitch information)*
2. Enter programming mode
   Press **Fn + Pgm** keys *(Black keys -The LED indicators will flash green confirming entrance)*
3. Press the trigger key (or keys) you are wanting to use as your hotkey *trigger (Example: **Fn + K –** lavender keys)*
   (indicator LED solid red to confirm trigger key acquired)
4. Press the target keys (string) you are wanting to assign to your trigger key *(Example: **keyboard –** orange keys)*
   (indicator LED blink red once to confirm target key acquired)
5. Press **Pgm** to save the macro *(black key)*
   (The LED indicator will flash green confirming save)
   Repeat steps 3, 4 and 5 for other keys you want to remap
   or
   press **Fn + Pgm** to exit programming mode *(The LED indicators will flash green confirming exit)*

   Open notepad and test it out, press the combo **Fn + K,** it should type out the word "**keyboard**".

Using delay timers in your macros

You can program specific periods of time within your macros, this is useful as some macros you create will execute too quickly for your operating system to handle correctly. Let's go through another example of setting up a macro, this time we will use a delay timer function to have it be correctly interpreted by the OS.

In this example we will want to set up a hotkey combo of **Fn + N**, we want this hotkey to automatically run notepad.

There are many ways to open Notepad on Windows OS, one of them is by using the run dialogue box. If you hit the windows key + R it will bring up the *run* dialogue box, if you type in '*notepad*' and then hit enter it will open Notepad.

Since we can do this from our keyboard we can set up a macro to perform this action from one hotkey combo:

programming_macro_run.png

1. Make sure Fn and Pgm keys are enabled (see above for dipswitch information)
2. Enter programming mode
   Press **Fn + Pgm** keys *(Black keys - The LED indicators will flash green confirming entrance)*
3. Press the trigger keys you are wanting to use as your hotkey trigger
   *(Example: **Fn + N** – Sky blue keys)*
   (indicator LED solid red to confirm trigger key acquired)
4. Press the target string you are wanting to assign to your trigger key
   *(Example: "**[Windows key + R] "notepad" [enter key]**" – you would hit the windows key and "R" key, then type the word notepad then hit the enter key – [Red keys] + [orange keys] + [green key])*
   (indicator LED blink red after every character to confirm)
5. Press **Pgm** to save the macro
   (The LED indicator will flash green confirming save)
6. Press **Fn + Pgm** to exit programming mode *(The LED indicators will flash green confirming exit)*

Now, when you press **Fn + N** it will attempt to perform this macro, but it will not work consistently. This is because the macro is being sent too quickly for the OS to correctly interpret what is being input. It may work sometimes, but not consistently. We can fix this issue by adding a **delay timer** to our macro string.

You can add delay timers of varying intervals by pressing:

delay_timers.png

Fn + 1 to add 10 milliseconds of time (1/100th of a second) *(Mint key)*
Fn + 2 to add 100 milliseconds of time (1/10th of a second)*(Lavender key)*
Fn + 3 to add 1000 milliseconds of time (one second)*(Pink key)*

You can also **stack** delay timers. For example if you wanted to add 30 milliseconds of delay, you would hit **Fn + 1** three times in a row.

It looks like the error is happening because there is a tiny bit of lag when opening the run dialogue box, so part of the string 'notepad' is attempting to be inputted before the text field is ready to accept the input. Let's redo our macro and add a 10 millisecond delay timer after the **Windows key + R** segment of our macro string:

programming_macro_run_delay.png

1. Make sure Fn and Pgm keys are enabled (see above for dipswitch information)
2. Enter programming mode
   Press **Fn + Pgm** keys *(Black keys - The LED indicators will flash green confirming entrance)*
3. Press the trigger keys you are wanting to use as your hotkey trigger
   *(Example: **Fn + N** – Sky blue keys)*
   (indicator LED solid red to confirm trigger key acquired)
4. Press the target string you are wanting to assign to your trigger key
   *(Example: "**[Windows key + R]** **[Fn+2]** **"notepad"** **[enter key]**" – you would hit the Windows key and "R" key at the same time, then hit Fn + 2 at the same time, then type the word **notepad** then hit the enter key. – [Red keys] + [lavender keys]+ [orange keys] + [green key])*
   (indicator LED blink red after every character to confirm)
5. Press **Pgm** to save the macro
   (The LED indicator will flash green confirming save)
6. Press **Fn + Pgm** to exit programming mode *(The LED indicators will flash green confirming exit)*

   Now try the macro again by pressing **Fn + N** it should run Notepad every time you press it without any issues.

   This is just one example of adding a delay timer, but you can use them at any point and multiple times within a macro string. If you can perform the action with your keyboard slowly but when you make the macro something doesn't quite seem to be working right or consistently, most likely it is because you need to add some delay between your actions. The amount of delay you need to use will depend on what you're trying to do, so some trial and error will be needed to figure that out.

Moving the Fn and Pgm keys

You can move the Fn key and Pgm key to a spot you find more useful or comfortable. When these keys are enabled they also hide the original key position they are 'covering' so keep that in mind when moving these keys. This may also be a reason why you want to move them, by default the Fn key is in the "Menu" key position, you may have a use for the Menu key, and want to move it so you can have both the Fn key and Menu key at the same time.

Note: The layer swap keys cannot be moved

move_fn_pgm.png

1. Make sure Fn and Pgm keys are enabled (see above for dipswitch information)
2. Enter programming mode
   Press **Fn + Pgm** keys *(Black keys - The LED indicators will flash green confirming entrance)*
3. Press and hold the key you want to move for 5 seconds
   *(Example: **Hold Fn for 5 seconds** – Red key)*
   (indicator LED will flash red for 5 seconds then solid green)
4. Press the target key you are wanting to assign the Fn or Pgm key to
   *(Example: you want to move the **Fn** key to the **Pause** key, you will just press the **Pause** key now – Green Key)*
   (indicator LED will flash green to confirm)
5. You can now move the other key if desired
   or

6. Press **Fn + Pgm** to exit programming mode *(Black keys -The LED indicators will flash green confirming exit)*

Clearing macros

There are three ways to clear macros, on a key level, a layer level and a board level.

1. Clearing a **key** – you can clear a remap by simply remapping (overwriting) the trigger with the target or just creating a new macro from that trigger.
    - Remap: Clear your “S” key that is remapped to “D” by just remapping “S” to “S”, now when you press “S” it will output “S” again, like it did by default.
    - Macro: Clear your macro “Fn + Q” by creating a macro “Fn+Q” to output “Fn” – which will essentially do nothing. Or by simply creating a new string that is triggered by “Fn+Q” that will overwrite your previous macro programming for this combination.
2. Clearing a **layer** – you can clear all remaps and macros from a single layer.
    - Navigate to the layer you want to clear
      (in this example we will clear Layer 4 Press **Fn + ?** to get to Layer 4)
    - Hold the layer swap combo for 10 seconds to clear, the LEDs will flash green to confirm it has been cleared (Hold **Fn + ?** for 10 seconds to clear layer 4)
3. Clearing the **entire board**– resetting the keyboard will clear all remaps and macros from all layers

To perform a reset;

1. Unplug the keyboard
2. Turn the keyboard over and set dipswitch SW4 to the "on" position,
3. Plug the keyboard back in
4. Wait for the reset cycle to complete
   the LED indicators will flash red, then go solid blue then go green
   when they are green the reset is complete
5. Unplug the keyboard again
6. Set SW4 back to the "off" position
7. Plug the keyboard back in

Note: you cannot use the keyboard when SW4 is set to the “on” position.

Any confusion or errors in this manual please let us know by emailing us.

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