

Mazda MX-5 RF roof controller RFC-3 installation guide, operation manual, and configuration software.



Overview:

The RFC-3 controller allows the user to operate the roof mechanism with one-touch of the roof switch at selectable speeds up to 30 mph as well as when driving in reverse. Each car key can be assigned for a different configuration. If an optional [IG Controller](#) device is installed, roof operation can also be controlled remotely with a key fob.

Hardware Installation:

Tools required: 10 mm socket or ratcheting box wrench. Portable light. Small flat screwdriver.

1. Open half way the convertible top. Lower the windows. Disconnect the negative battery terminal.
2. Move the left seat all the way forward and tilt the back fully forward. The door sill is snapped in place. Remove it by gripping opposite ends and pulling upward. (Figures 1 and 2)



Figure 1



Figure 2

3. Remove plastic rivets (1) through (3). First use the small screwdriver to pry the center piece outward and then grab the ring to pull the entire rivet free. Rivet (4) is a simple plug without the center piece.

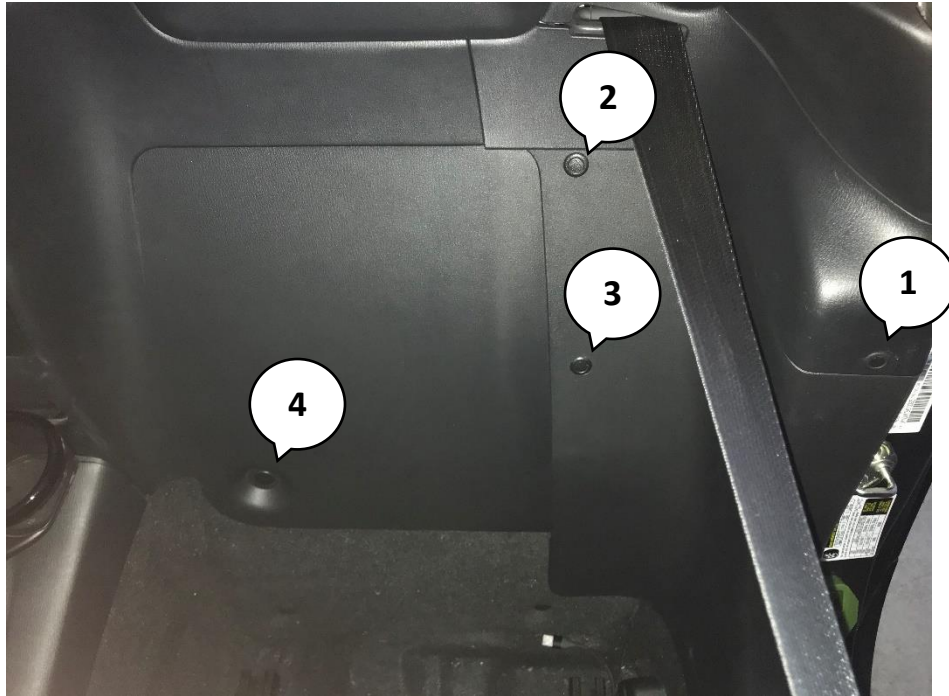


Figure 3

4. Remove the side trim by first gently pulling outward on the left lower corner (1), then pull downward (2), and lastly toward the front of the car (3). This trim is also snapped into place with a few more metal clamps.

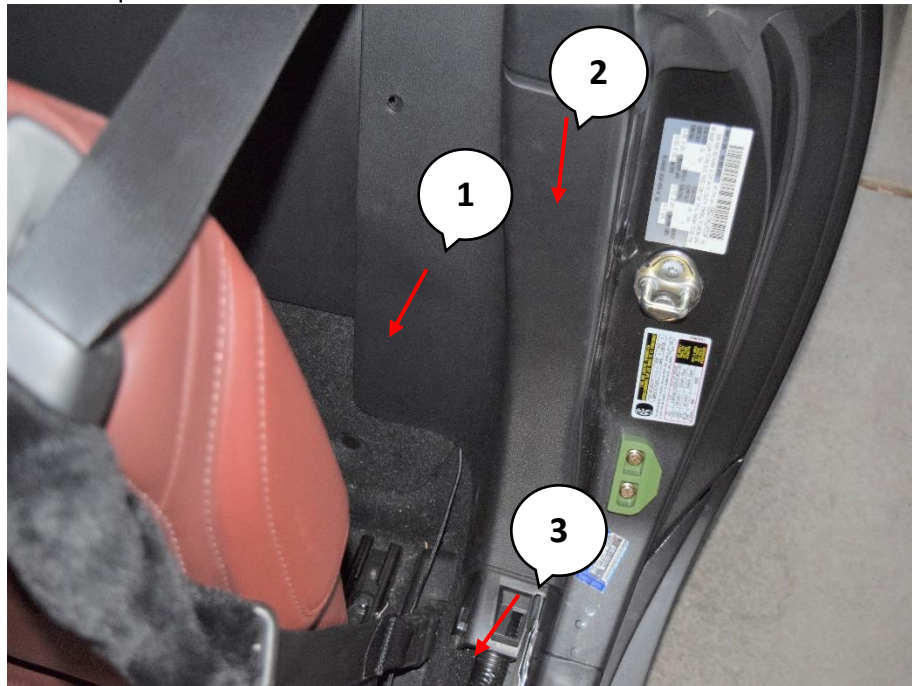


Figure 4

5. It is now possible to pull the back cover wall forward and look underneath. The cover wall can be hooked with bungee cords so that it remains out of the way. A black metal holder with a very distinctive silver nut on top (1) should be visible.

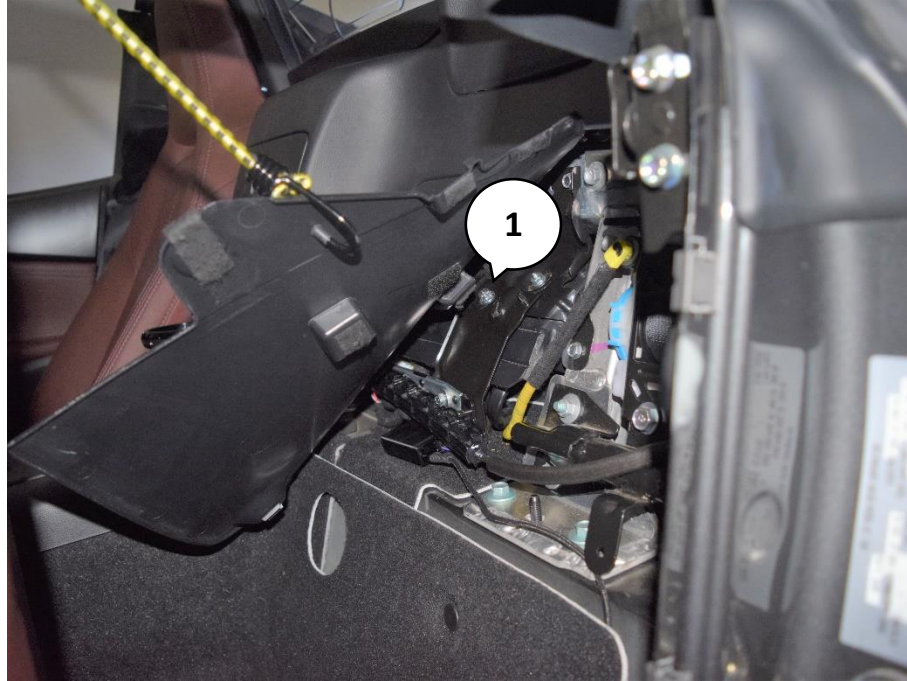


Figure 5

6. Use a 10mm socket or ratcheting box wrench to remove the nut (1), and then flip the metal holder down by first pulling it off the bolts (see arrows). Directly beneath is a plastic lid with two folds/hinges.
7. The piece flipped down in step (1) is shown here. Now fold the plastic covering (2) upward in the direction of the arrows. Directly underneath are connectors for the convertible top controller.

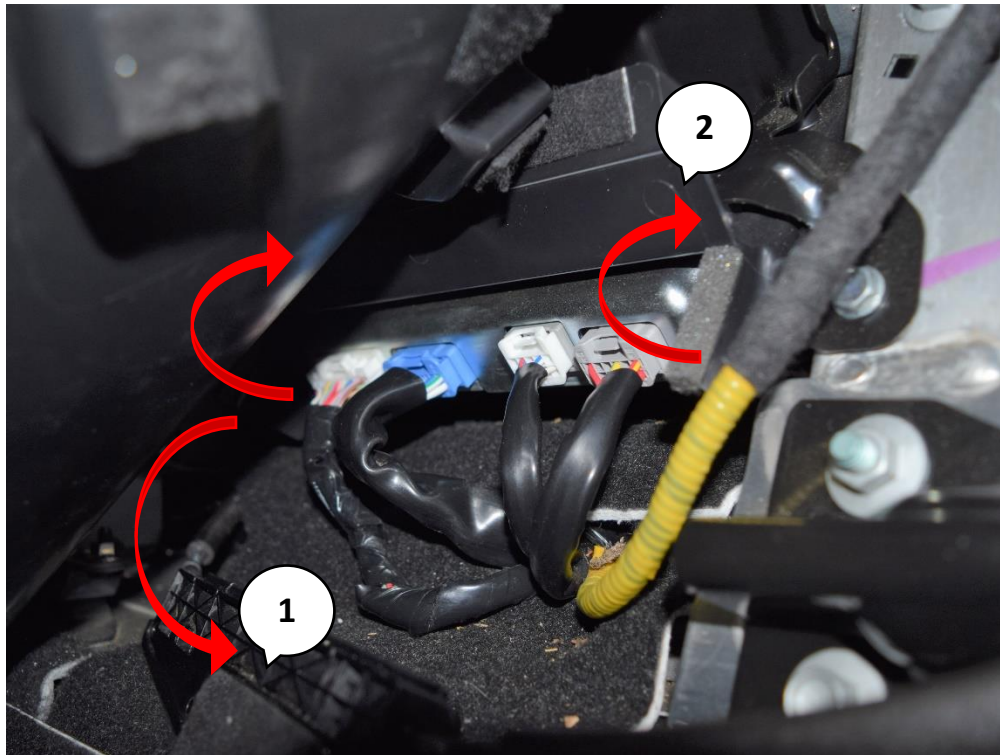


Figure 6

8. Remove the leftmost white plug (1) and the adjacent blue plug (2). They are locked into place with latching mechanisms. Push down on the tabs in the middle while pulling the plug and NOT the harness. If necessary, inspect the corresponding plugs on the module harness for a visualization of the latching mechanism.

9. The disconnected white (1) and blue (2) plugs are shown.

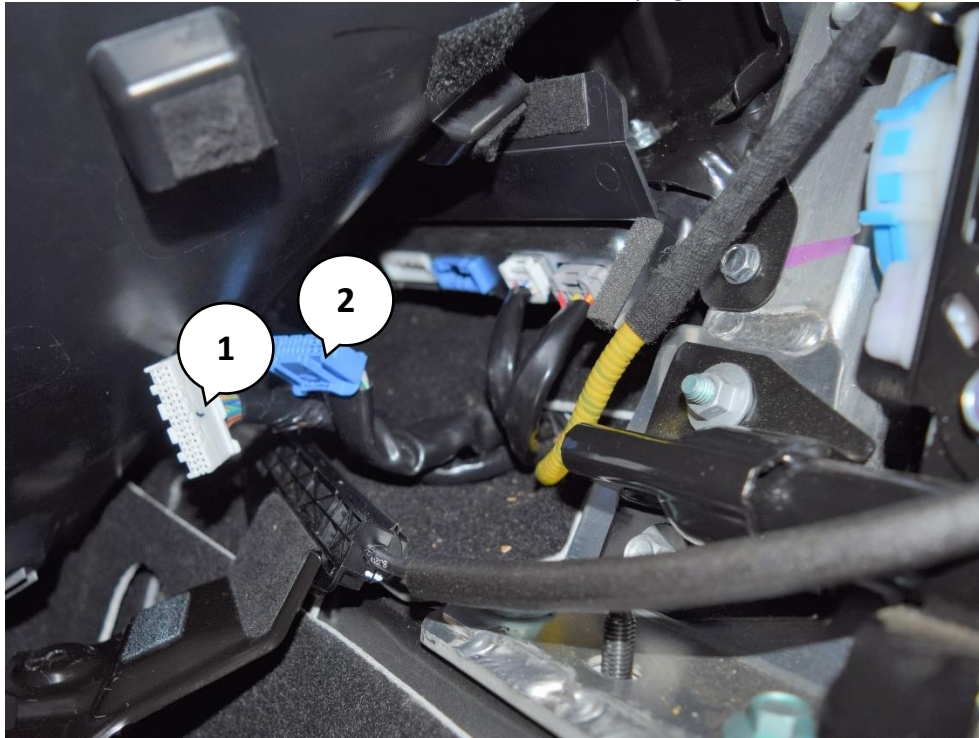


Figure 7

10. Insert each plug into the matching socket on the RFC-3 wiring harness. Make sure that they latch securely into place.



Figure 8

11. Insert the RFC-3 harness plugs into the matching sockets on the car convertible top controller. Again, assure that both plugs latch securely into place.

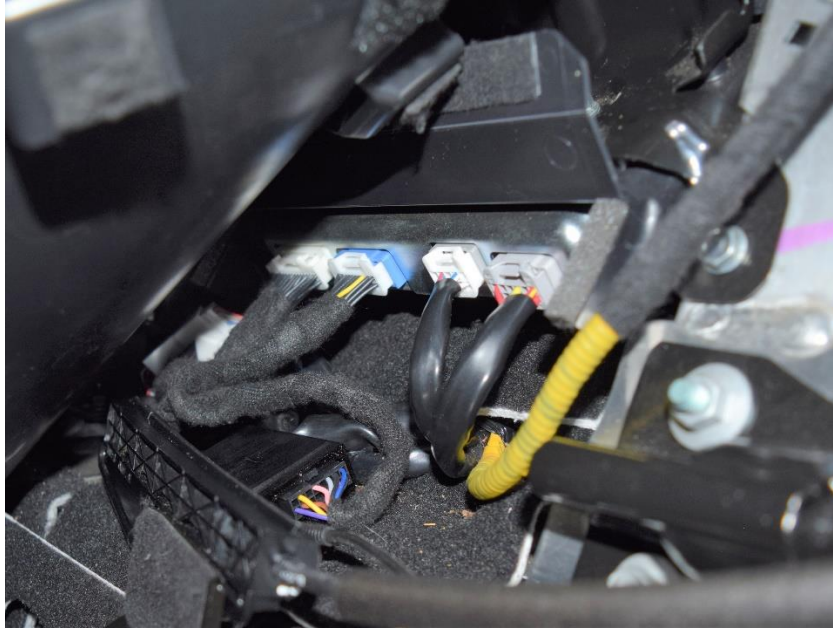


Figure 9

12. Plug the RFC-3 plug into the RFC-3 module socket.
13. Reconnect battery and turn the ignition fully on. The LED should be now blinking Red, indicating a successful installation. Check operation using Roof switch.



Figure 10

14. Turn the ignition back off, re-assemble everything, and configure the module according to our Operation and Programming manual if not configured prior to installation.
15. We recommend leaving the USB cable connected to the module and then running it to an accessible area. This allows easy laptop connection for future updates and configuration changes.

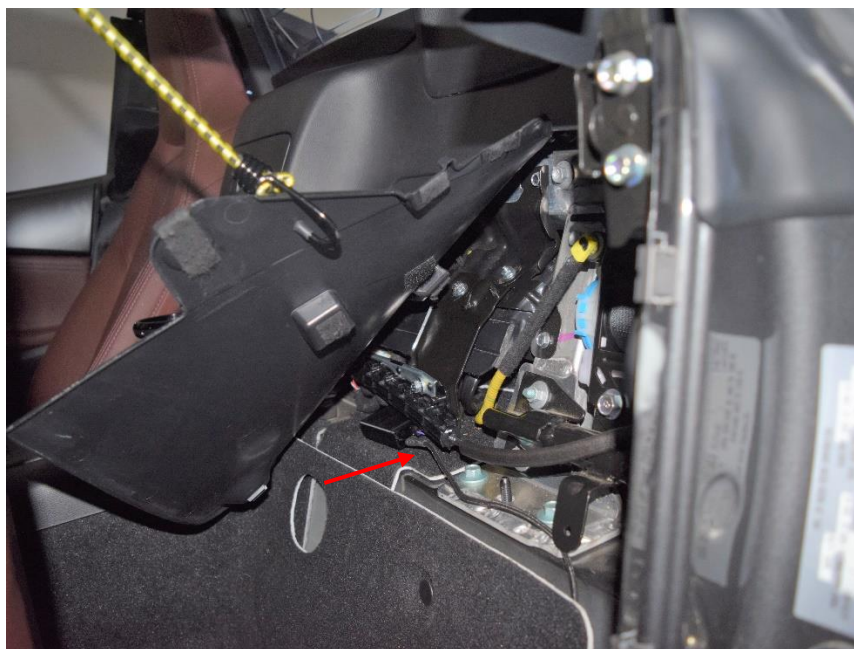


Figure 11



Figure 12

Operation:

4 configurations can be implemented:

1. – **“One touch normal”** fully opens the roof when the switch is moved up for a half-second (or until the roof starts moving). The roof fully closes when the switch is moved down for a half-second. This matches the graphics on the switch.
2. – **“Disable one-touch”** operates the roof in the factory-default mode with all of its limitations.
3. – **“One touch reverse”** opens the roof when the switch is moved down for a half- second (or until the roof starts moving). The roof fully closes when the switch is moved up for a half-second. This is opposite the switch graphics while being more natural for some people.
4. – **“Valet mode”** disables all roof operations.

The desired operational speed limit can be set using the “Speed limit” dialog box; up to a maximum of 30 mph.

When operating with one-touch, roof movement can be paused by clicking switch in the opposite direction.

Separate roof configurations can be assigned to individual key fobs. Each assignment is activated by unlocking the car using that key fob.

To quickly change the configuration from one-touch to OEM mode or Valet mode use this sequence:

1. Turn the car power off.
2. Keep driver side door open.
3. Enable the programmed one-touch operation for a key fob: Push roof switch up and hold it in position. Click the “Unlock” button on the key fob twice. Release the roof switch.
4. Disable the programmed one-touch operation for a key fob: Push roof switch down and hold it in position. Click the “Unlock” button on the key fob twice. Release the roof switch.

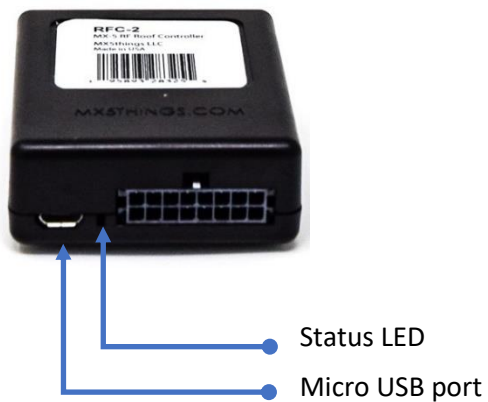
Module Configuration:

Configuration can be done before installing the module in the car or after the module is installed when the car power is off.

For normal operation, the USB cable **must** be unplugged from the computer. The Micro USB end can remain connected with the module. The cable can then be routed so that the USB A connector is available for easy access to make future configuration changes.

The Status LED will be on if CAN bus communication with the car is active. The module goes to sleep 2-5 minutes after the car power turns off and the LED will turn off.

Figure 13



Configuration using MS Windows 10/11

1. Download Configuration software for RFC3 [MS Windows](#) from the product page.
2. With car power off, connect the RFC-3 module to a Windows PC via the Micro-USB cable. The module status LED will be solid Red.
3. Start application. It will connect to the module automatically.

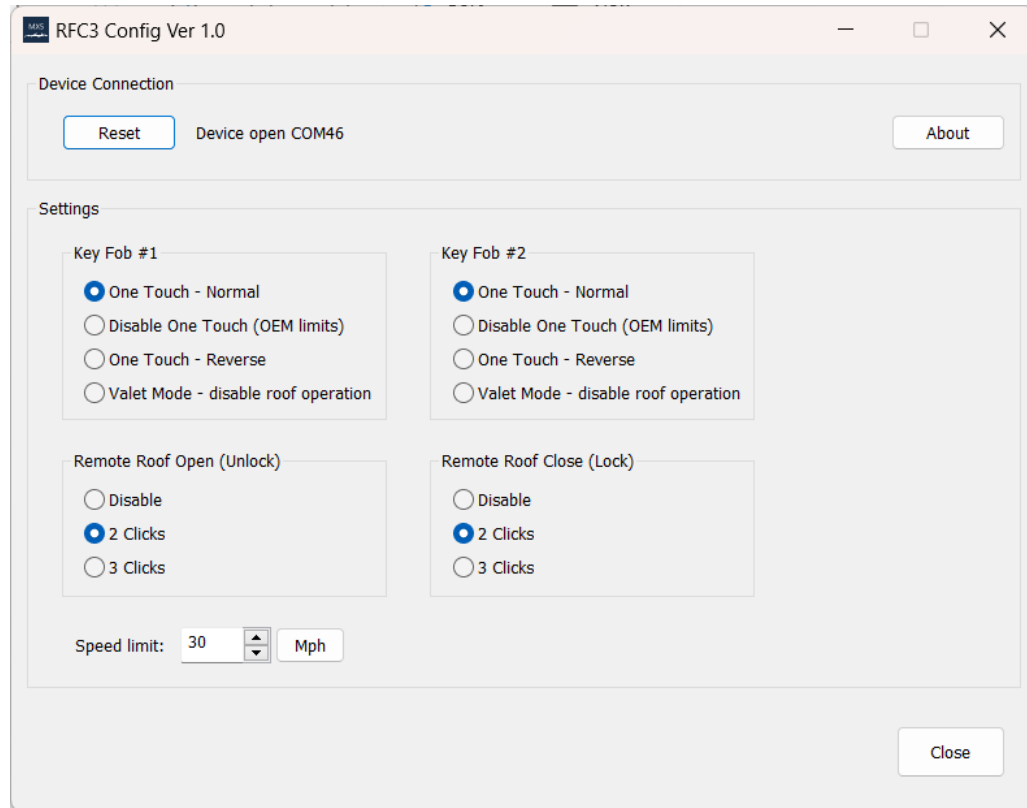


Figure 14

4. Select new settings and press “Reset” button to activate new settings.

Alternative configuration method

1. Download and install PuTTY app from Microsoft Store [PuTTY - Free download and install on Windows | Microsoft Store](#)
2. With car power off, connect the RFC-3 module to a Windows PC via the Micro-USB cable. The module status LED will be solid Red.
3. First check new COM port number, appeared after connecting module

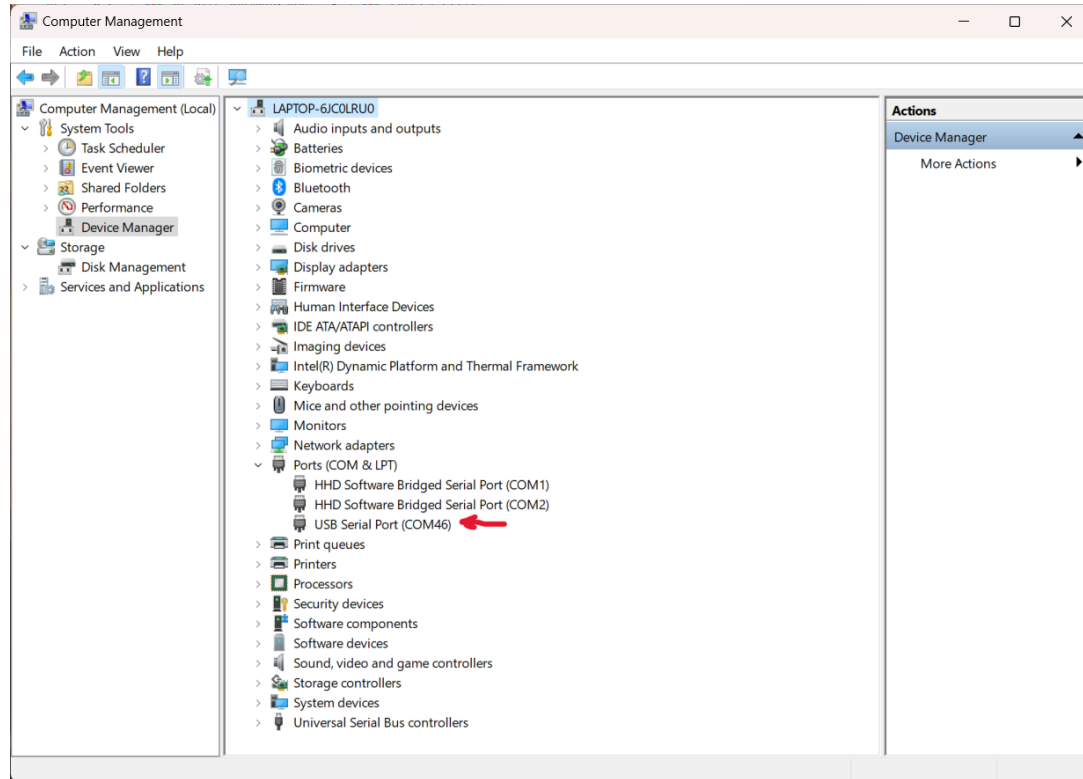


Figure 15

4. Start PuTTY application and select connection type Serial with new COM port

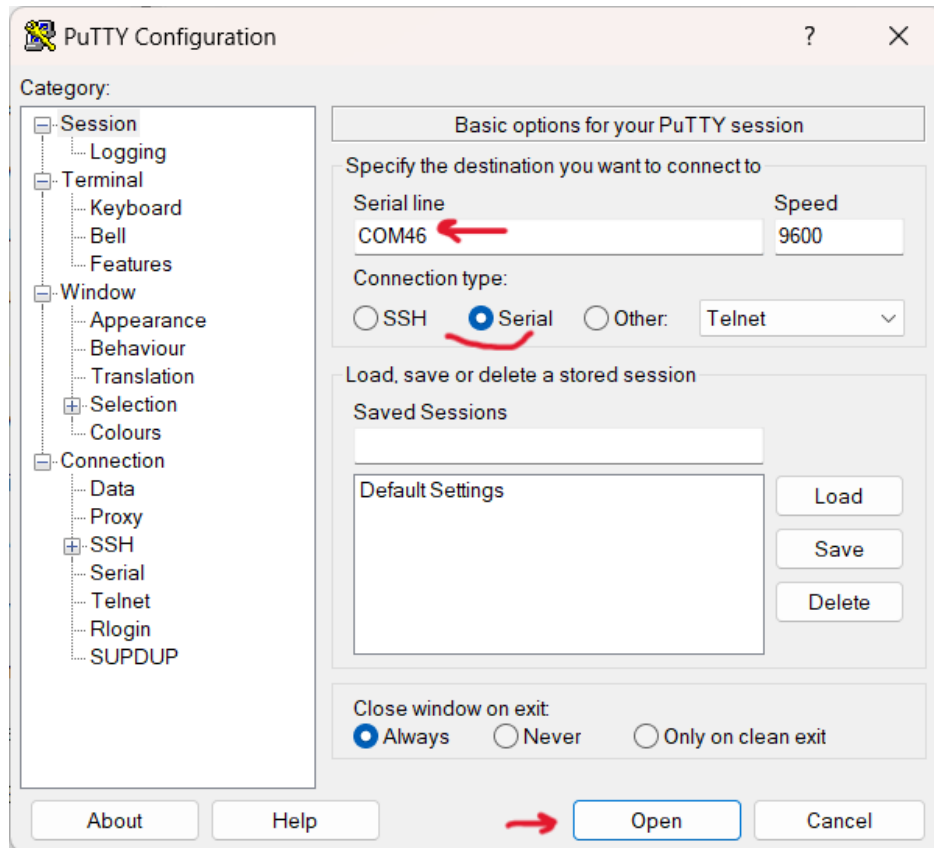
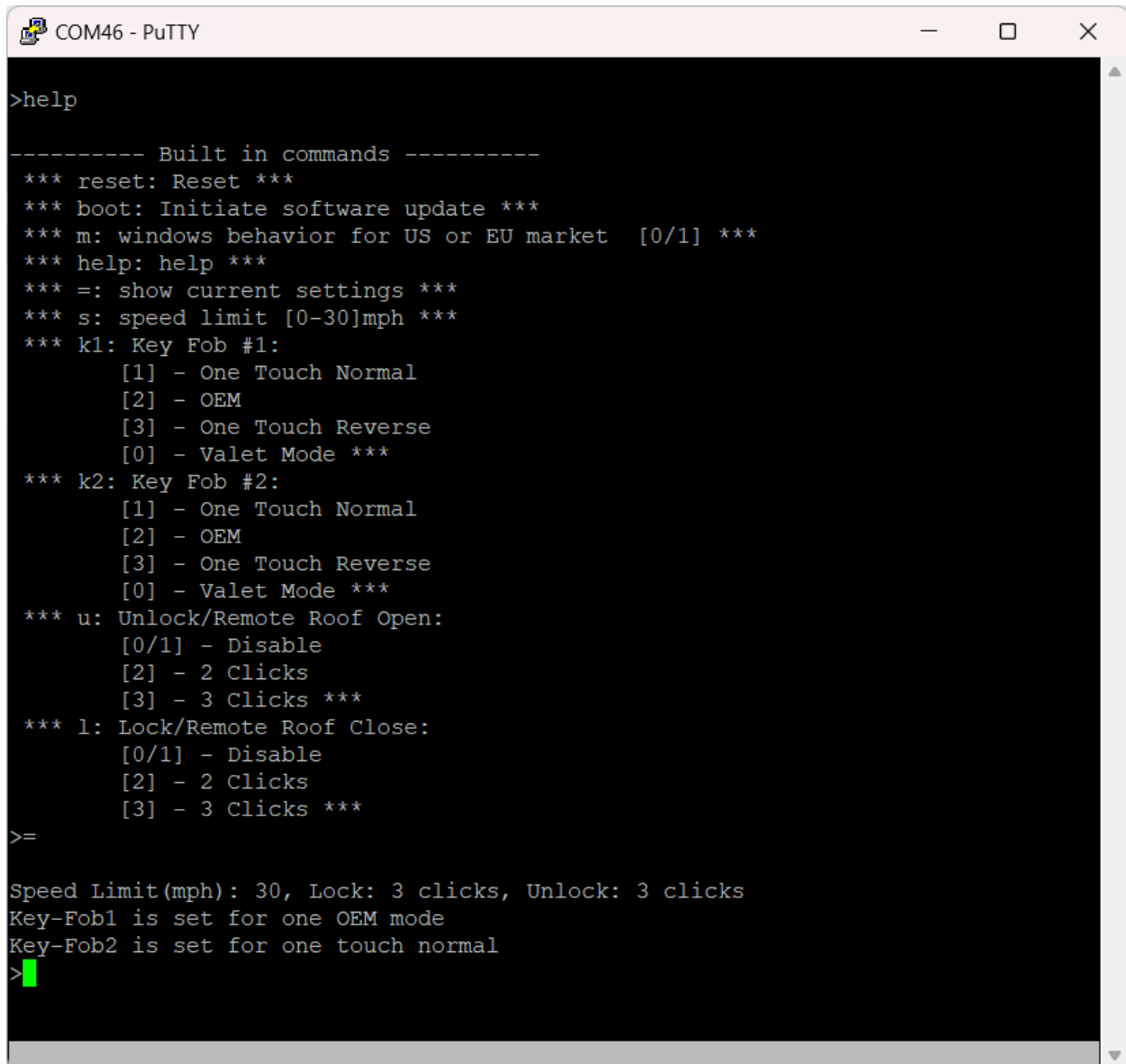


Figure 16

5. After successful connection, a new window will appear. Click <enter> button on the keyboard to see prompt ">". Type help command to see all available options.
>help<enter>



```
>help

----- Built in commands -----
*** reset: Reset ***
*** boot: Initiate software update ***
*** m: windows behavior for US or EU market  [0/1] ***
*** help: help ***
*** =: show current settings ***
*** s: speed limit [0-30]mph ***
*** k1: Key Fob #1:
      [1] - One Touch Normal
      [2] - OEM
      [3] - One Touch Reverse
      [0] - Valet Mode ***
*** k2: Key Fob #2:
      [1] - One Touch Normal
      [2] - OEM
      [3] - One Touch Reverse
      [0] - Valet Mode ***
*** u: Unlock/Remote Roof Open:
      [0/1] - Disable
      [2] - 2 Clicks
      [3] - 3 Clicks ***
*** l: Lock/Remote Roof Close:
      [0/1] - Disable
      [2] - 2 Clicks
      [3] - 3 Clicks ***
>=

Speed Limit(mph): 30, Lock: 3 clicks, Unlock: 3 clicks
Key-Fob1 is set for one OEM mode
Key-Fob2 is set for one touch normal
>
```

Figure 17

6. You can now select desired configurations for each key fob. Configurations save to the module immediately.
7. To see current setting, type >=<enter>
8. Disconnect the USB cable from the computer.
9. Confirm assignment for each key fob by pressing “unlock” from outside the car.
10. Test to confirm selected roof operation.

NOTE: If you change settings while the module is installed in the car, type the “reset” command after finishing. The new setting becomes active only after the module restarts.

Configuration using Mac OS

1. With car power off, connect the RFC-3 module to a Mac via the Micro-USB cable. The module status LED will be solid Red.
2. Open Terminal app. Type – `sudo ls /dev/tty.usb*` to find name of attached device.
3. Type `screen /dev/tty.usbmodem14101` (name is example, it could be different). A new screen will appear.



```
mx5things — -zsh — 80x24
Last login: Sat Jun 29 13:48:10 on ttys000
mx5things@Sergeys-MacBook-Air ~ % sudo ls /dev/tty.usb*
>Password:
/dev/tty.usbmodem14101
mx5things@Sergeys-MacBook-Air ~ % screen /dev/tty.usbmodem14101
```

Figure 18

```

>help

----- Built in commands -----
*** reset: Reset ***
*** help: help ***
*** =: show current settings ***
*** s: speed limit [0-30]mph ***
*** k1: Key Fob #1:
      [0] - One Touch Normal
      [1] - Disable
      [2] - One Touch Reverse
      [3] - Valet Mode ***
*** k2: Key Fob #2:
      [0] - One Touch Normal
      [1] - Disable
      [2] - One Touch Reverse
      [3] - Valet Mode ***
*** u: Unlock/Remote Roof Open:
      [0/1] - Disable
      [2] - 2 Clicks
      [3] - 3 Clicks ***
*** l: Lock/Remote Roof Close:
      [0/1] - Disable
      [2] - 2 Clicks
      [3] - 3 Clicks ***

>=

Speed Limit(mph): 30, Lock: 2 clicks, Unlock: 2 clicks
Key-Fob1 is set for one OEM mode
Key-Fob2 is set for one OEM mode
>k1 0
Key-Fob1 is set for one touch normal
Speed Limit(mph): 30, Lock: 2 clicks, Unlock: 2 clicks
Key-Fob1 is set for one touch normal
Key-Fob2 is set for one OEM mode
>

```

Figure 19

4. Type help<enter> to see list of available commands.
5. You can now select desired configurations for each key fob. Configurations save to the module immediately.
6. To see current setting, type >=<enter>
7. Disconnect the USB cable from the computer.
8. Confirm assignment for each key fob by pressing “unlock” from outside the car.
9. Test to confirm selected roof operation.

NOTE: If you change settings while the module is installed in the car, type the “reset” command after finishing. The new setting becomes active only after the module restarts.

Remote control operation:

Installation of the optional IG/ACC controller module allows remote roof operation to be activated with a key fob. The software allows you to configure the module to remotely open the roof using two or three “unlock” key fob clicks, remotely close the roof using two or three “lock” key fob clicks or disable remote operation.

Remote operation is also disabled if OEM or Valet mode is selected.

For emergency situations, stop automatic movement by pressing the “Unlock” button. This shuts car power off and the roof mechanism stops. To continue operation, start the car and use a roof switch to manually complete the movement.