

LOSMANDY

Gemini 2 Hand Controller Troubleshooting



Hand Controller Overview

The Gemini 2 Hand Controller connects to the Gemini 2 Astronomical Computer and provides an intuitive touch screen interface for managing and controlling your Gemini Astronomical Computer (i.e., Gemini)

Unlike other systems, The Hand Controller is does not perform core astronomical functions: instead it is a client into the Gemini. It connects via the Hand Controller port which is basically a serial port connection.

The Hand Controller gives you the ability to change settings, move the telescope, look up and GOTO targets in a huge 40,000+ object database, enable you to build a pointing model, and more.

The Hand Controller is not required to be connected to the Gemini in order for the Gemini to work properly. Many astroimagers who connect their Gemini to a computer (using a serial, USB, or Ethernet connection) disconnect and store their Hand Controller, as it's not necessary.

Troubleshooting Hand Controller Issues

Please see the following symptoms, possible causes, and proposed solutions in the table below. Solutions are detailed below the table

| Symptom | Possible Cause(s) | Solutions |
|---|--|---|
| Hand Controller does not power on | Wrong port Gemini not turned on Gemini not plugged in | Check for correct port check cable is seated properly on both ends Check for Gemini Power ON |
| Hand Controller hangs when starting up/ connecting | Incorrect port Bad connection Battery low Power problems Cable problems SD card not seated properly/corrupted | Try all the Troubleshooting details listed below |
| Hand Controller resets and causes Gemini to reset | Bad hand controller cable | Contact Losmandy for replacement cable https://store-losmandy-com.3dcartstores.com/smcc |
| Hand Controller switches to different language | Screen needs recalibration | Recalibrate screen |
| Buttons do not appear to work or work randomly | Bezel pressing down on touchscreen Bad cable | Adjust pressure on touchscreen Replace cable |
| Everything works but slew buttons do not move scope | HC on Guide Speed | Confirm Gemini is not on Guide speed |

| | | |
|--|---|---|
| Buttons erratic, sometimes move in same direction or don't move at all | Movement needs to finish, avoid locking direction buttons | See Understanding Hand Controller Buttons |
|--|---|---|

Troubleshooting Details

1. **Correct port** – The Hand Controller for the Gemini 2 should be connected to the HC port on the Gemini 2 mini.
2. **Cable Seated Properly** – Ensure both ends of the hand controller cable are fully pressed into the port on both the hand controller and the Gemini 2 unit and they “click” into place (the connector is a telephone-style connector and has a small plastic clip that clicks when it's fully inserted).
3. **Check for Gemini Power ON** – The Hand Controller is powered via the Gemini 2. Make sure power is supplied to the Gemini 2 unit and the ON OFF button is set to on. The rocker switch will illuminate to indicate power is ON.
4. **Confirm Gemini not on Guidespeed** – The Hand Controller direction arrows control movement in both DEC and RA. The speed at which they move are controlled by the SPEED button on the Hand Controller home screen. Pressing the SPEED button will cycle through the various speed options

The different speeds are:

SLEW
MOVE
CENTER
GUIDE

Slower speeds such as CENTER and GUIDE result in such small movement speeds that it may not be easy to see. Change the speed to SLEW or MOVE to verify the buttons are operating correctly.

5. **Check Power Source** – under voltage or noisy power can sometimes cause issues. If you are using a battery, make sure it's fully charged, and check the voltage. 12v batteries typically have 13-14.4v to start, and voltage goes down as the battery drains. If the battery is only 12v or less when fully charged, it is likely no good.

Try switching to a new battery

If using DC, switch to AC using an AC/DC converter (we prefer the Losmandy version which is 15v 5amp <https://store-losmandy-com.3dcartstores.com/acdc>)

If you are on AC try a different power circuit. The Gemini can be sensitive to excessive power noise. If you find this to be the case try using a clip-on noise suppressing magnet on the power cord, such as these:

<https://www.amazon.com/VSKEY-Anti-interference-Telephones-Equipment-Appliances/dp/B075G2P5SW> (please confirm proper diameter for your cable)

6. **Check/Replace Gemini Battery** – There is an internal battery inside the Gemini 2 mini that retains settings when powered down. Gemini 2 mini batteries are designed to last 2-3 years. You can check the battery voltage from the Gemini's built-in web page. If it's low, replace the battery. The type for Gemini 2 mini is CR2450. The battery is beneath the Gemini 2 mini front plate. Make sure your Gemini 2 is unplugged when working directly on the mainboard. A short video with some details in the descriptions is here: <https://youtu.be/a8XzoPkLhx4>

The Hand Controller does not have an internal battery and instead gets power from the Gemini 2.

7. **Recalibrate Screen** – Recalibrating the screen involves tapping the screen at a specific time during startup, and walking through a series of screens, tapping where indicated. For more details see this guide <http://losmandy.com/screencalibrate.html>
8. **Reseat SD Card** – sometimes the microSD card in either the Hand Controller or the Gemini 2 mini will become unseated and cause issues. You can easily open up both the Gemini 2 unit and the Hand Controller and reseat the card

Instructions on how to do this on the Gemini 2 are here:

<https://www.youtube.com/watch?v=pKflaCwZF1M>

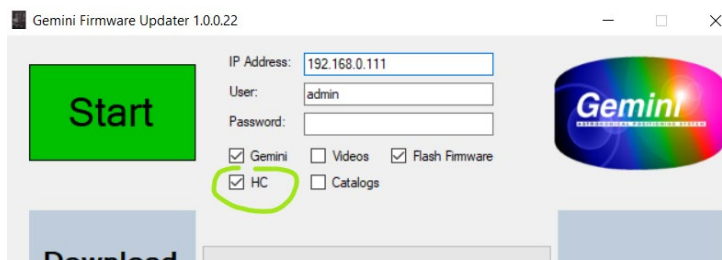
The Hand Controller microSD card has a similar holder mechanism. You need to unscrew the four corner screws to remove the bezel. You will see the touchscreen computer board above the Hand Controller main board, connected via a large multi-pin connector. Gently rock the Touchscreen board back and forth along the long edge of the board to gently unseat the touchscreen. You will find the microSD card beneath this. Follow the above video for removing/reseating the microSD card. Once that is done, align the pins and the connector and push gently down to reseat the touchscreen. IT IS VERY IMPORTANT TO PROPERLY LINE UP THE PINS WITH THE CONNECTOR!

9. **Unplug/Replug in Hand Controller** – Simply unplug each end of the spiral cord that connects the Hand Controller with the Gemini 2 mini, wait a few seconds, and re-plug in. You can also reverse the cable ends. It is okay to unplug/plug in the Hand Controller while the Gemini is powered on.

10. **Update Hand Controller Firmware** – use Gemini Firmware Updater (GFU) that can be downloaded from this page <http://www.losmandy.com/support.html>

when you update the firmware, you will need to be connected via Ethernet.

Make sure you check the box for “HC” to ensure the Hand Controller firmware gets updated.



11. **Adjust pressure on touchscreen** – Power off the Gemini 2. Turn the Hand Controller over and loosen each of 4 screws holding on case by ¼ turn. Power on the Gemini and see if this fixes the issue. If not, you can try repeating, up to 1 full turn of each screw.

12. **Understanding Hand Controller Buttons** – Customers sometimes report when pressing the Hand Controller direction buttons they appear to not work, or continue the same direction instead of reversing direction, or appear not to work at all.

When using the opposite direction button make sure to wait a few seconds for the Gemini to finish the prior move.

If you find the buttons “stick” and continue the direction even after you lift your finger off the button, make sure you lift directly up. If you slide your finger off the direction button and then lift up, you can lock the button push. Tap again to unlock.

if it appears the buttons do not cause any movement, check to make sure you are not on guidespeed

13. **Replace Cable** – A replacement Hand Controller spiral cable can be purchased here <https://store-losmandy-com.3dcartstores.com/smcc>

Remember the Hand Controller is not required to use your Gemini 2 mini. If you cannot get your Hand Controller working and you are imaging using computer connected via ASCOM or INDI, you can still connect and use the Gemini 2 without the Hand Controller. Just disconnect and set aside.