Gemini Software Quick Start Guide

Thank you for purchasing the Gemini Focusing Rotator package. Gemini provides both telescope focusing and camera rotation in a single, robust package. The Gemini package includes ASCOM driver software for use with any ASCOM compliant software client, flash upgradable firmware, and an easy-to-use interface program. Gemini offers a variety of connection options and optional add-on components. Refer to the Gemini User Manual for more details regarding these options.

The purpose of this document is to quickly get you up and running using the standard items included with every Gemini package.

What's in the Box:



- Gemini Focusing Rotator,
- OPTEC-4300 to Optec-DSI 3.5" threaded mount,
- Gemini controller hub,
- Gemini hand controller with two coiled cables,
- Temperature probe with thermal adhesive foam,
- USB/Serial cable, 6-ft. length,
- 5/64" T-handle hex driver,
- 12VDC power supply and wall plug,
- Three (3) flat Cat-5e cables,
- Pelican case with custom insert.

Mechanical Connections:

Both telescope and camera side interfaces feature 4.3-inch receivers to accept any male OPTEC-4300 mount. The OPTEC-4300 mounts are held in place with three oval point setscrews accessible through small access ports in the main plate for the telescope-side and the drawtube for the camera side. Visit http://www.optecinc.com/astronomy/optec-4300_adapters.htm for the current selection of available adapters or order a custom adapter from Precise Parts (http://preciseparts.com).

Note that the #19830 OPTEC-4300 to Optec-DSI 3.5" threaded adapter is pre-installed in the drawtube on the camera side of the Gemini. This adapter can be used in conjunction with the Optec-DSI spacers to achieve any desired back-focus distance. See https://goo.gl/jm4fDv for spacer combinations to achieve required back-focus distances. The Gemini features a full ½-inch of drawtube travel, or about 12.7mm.

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Wiring Connections:

Note that the Gemini hub allows for multiple connection methods to a controlling PC. For simplicity, these Quick Start instructions will assume the USB/Serial method will be used.

1. Plug the wall plug into the 12VDC power supply and local 110/240VAC wall outlet,
2. Plug the 2.5x5.5mm plug into the 12VDC socket on the Gemini hub,
3. Plug the USB/Serial cable RJ12 plug into the Serial socket on the Gemini hub,
4. Plug one flat Cat-5e cable into the Focuser port on both controller and Gemini,
5. Plug one flat Cat-5e cable into the Rotator port on both controller and Gemini,
6. Slide the power switch on the left side of the Gemini hub to the On position (up). The LED will illuminate after the boot-load process completes (about 3-4 seconds),
7. The Gemini will immediately begin the homing sequence which will take a few minutes.

Install Gemini Commander Software:

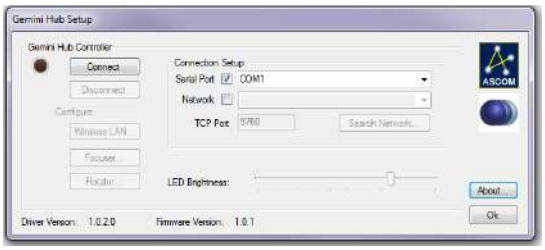
1. To obtain the current software and firmware, open a web browser and navigate to http://www.optecinc.com/astronomy/downloads/gemini.htm. Download the Gemini Commander and ASCOM driver software package.
2. Check to ensure the ASCOM platform version 6.3 or higher is already installed,
3. Visit www.ascom-standards.org to download and install the latest platform if necessary,
4. From your download folder, unzip and install Gemini Commander. This will also install the current ASCOM driver.

Connect USB/Serial cable to PC:

1. Plug the flat USB-A connector of the USB/Serial cable into any USB port on the PC,
2. Allow Windows to automatically load the drivers for the FTDI USB-to-Serial device,
3. If Windows prompts to search for new drivers, click OK, or visit the FTDI website at http://www.ftdichip.com/Drivers/VCP.htm to download the latest version driver,
4. Allow the USB device to complete the USB enumeration & assign a COM port number,
5. Confirm the new COM port assignment in Windows Device Manager. Expand the **Ports (COM & LPT)** section to verify a new **USB Serial Port (COMxx)**. Note the COM port number assigned by Windows.

Start Gemini Commander:

1. Double-click the **Gemini Commander** icon on the desktop to start the program,
2. The main control screen will appear. Click **Tools – Settings**. A second setup dialog will



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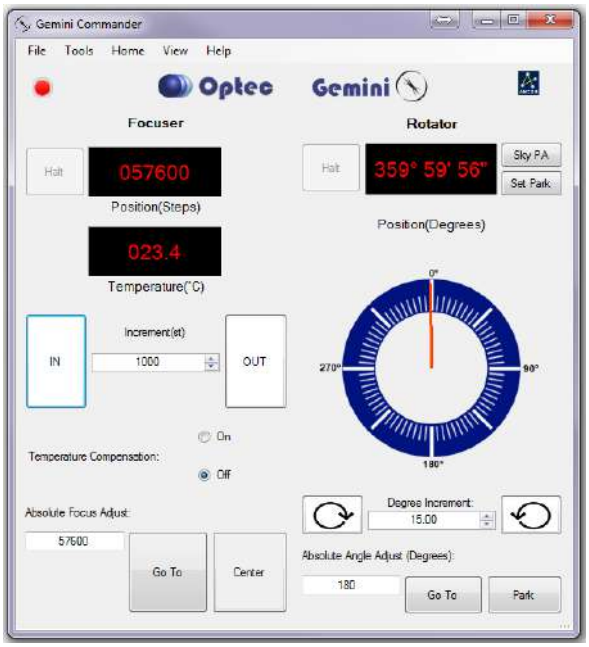
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appear, check the taskbar if the **Gemini Hub Setup** dialog does not immediately appear on top.

3. In the **Connection Setup** section, check the **Serial Port** option and select the Com Port noted in Device Manager,
4. Click the **Connect** button and the adjacent red dot should indicate the connection is active,
5. Click the **Focuser…** and **Rotator…** buttons to review the settings of the focuser and rotator functions of the Gemini.
6. Click **OK** to exit Setup and return to the Gemini Commander interface.

IMPORTANT: Note that the connection state of the setup dialog is independent from the main Gemini Commander connection state. Each window is a separate ASCOM client. Gemini Commander is made inactive whenever the Setup dialog is opened. When configuring Gemini from any ASCOM client, this same Gemini Hub Setup dialog will appear and MUST be connected independently of the connection state of the calling ASCOM client to make any changes. Changes made in the Gemini Hub Setup will apply to Gemini Commander and all ASCOM clients.

Test Focuser Controls:



- Click **Center** to set the focuser to the center of its travel position.
- Click **IN** and **OUT** buttons to move the focuser by a fixed **Increment**. Note the units of the **Increment** field vary with the value shown in the **Position** display.
- Click the red **Position** display to toggle between Steps (default), Microns, and millimeters. Note the units of the **Increment** field have changed.
- Click the red **Temperature** display to toggle between degrees in Celsius (default), Fahrenheit, and Kelvin.
- Enter a valid value into the **Absolute Focus Adjust** field and click **Go To.**
- Click the **View** pull-down to selectively enable or disable the various sections of the Gemini Commander interface. Click **Show All** to enable all view panels.
- Test the **Relative Focus Offsets** and **Absolute Focus Presets** for additional functionality.
- Click the On or Off radio buttons to enable or disable **Temperature Compensation**.
- A Temperature Compensation Wizard is available under the **File** pull-down. Review the documentation under Help, Documentation for detailed description of the temperature compensation features.

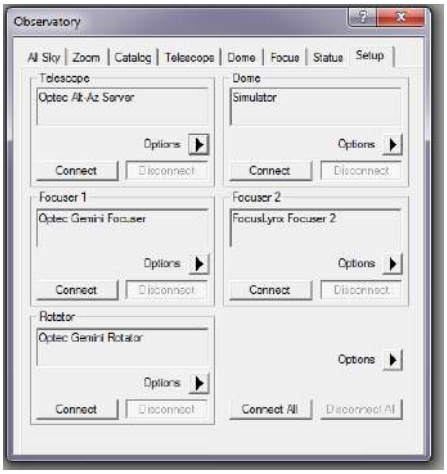
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Test Rotator Controls:

- On the Rotator panel, click the **Position** display to toggle between decimal degrees and DD:MM:SS values.
- Click the **Set PA** button to set an offset for the Gemini rotator position to match the actual Sky PA determined after a plate solution using a current image. (*See note at bottom for detailed explanation of Sky PA vs. instrumental position angle.)*
- Click the **Set Park** button to set a fixed park position. Clicking the **Park** button at bottom right will direct the Gemini rotator to move immediately to that fixed instrumental position.
- Click anywhere in the blue section of the rotator graphic to move the rotator to that position angle. Note that the Gemini will never cross instrumental position angle 180. This hard stop is designed to eliminate any chance of cable wrapping. You may halt a move in progress at any time by pressing the Halt button.
- Set the Degree Increment and click the clockwise or counterclockwise buttons to direct a relative move in that direction.
- Enter any **Position Angle** between 0 and 360 in the Absolute Angle Adjust and click the **Go To** button to direct the rotator to move to that position angle.

ASCOM Focuser Setup and Selection:

After completing the Gemini Commander setup above, your Gemini focusing rotator will be ready to use in any ASCOM application. Follow these steps for ASCOM use:



1. In your ASCOM application (i.e. Maxim D/L, Sequence Generator Pro), click the **ASCOM Focuser Chooser** to select **Optec Gemini Focuser.**
2. Click **Properties** to review the Setup options configured above,
3. In your ASCOM application (i.e. Maxim D/L, Sequence Generator Pro), click the **ASCOM Rotator Chooser** to select **Optec Gemini Rotator**.
4. Note that Gemini uses the ASCOM Local Server model for all operations. Thus ASCOM Platform 6 or above is ***required for Gemini to function***.
5. Gemini Commander may remain open while under control from any ASCOM application. In fact, any number of ASCOM applications may simultaneously connect to the Gemini hub.

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Additional Resources:

Within Gemini Commander, click **Help**, **Documentation** at any time for more detailed help and detailed additional information regarding any of the options. Detailed instructions are provided in the **Documentation** for each of the following options:

- Network and Ethernet setup options,
- Wi-Fi wireless network setup options,
- Gemini Hand Controller (now included with Gemini package),
- Remote IN/OUT Keypad option.

Contact support@optecinc.com with any configuration questions, issues, comments or bug-fixes.

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