

1600GTO Absolute Encoder Simple Setup

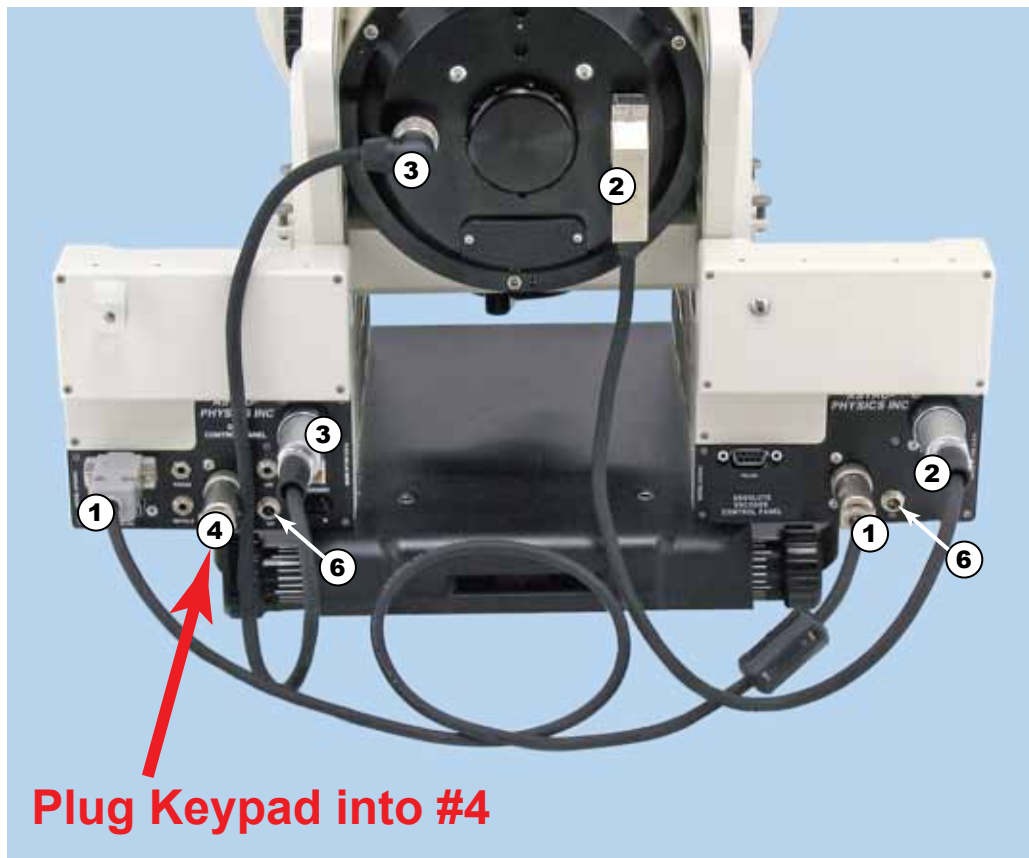
Control with Keypad Only

(Absolute Encoder Correction Active - No Home or Limits)

There are occasions when the simplest possible Absolute Encoder setup is desired. Perhaps, you have just received your new mount and you want to set it up in the house and see it work; or maybe you are setting up just for the night at a public viewing.

Whatever the reason, the easiest “out-of-the-box” set up which utilizes the Absolute Encoders for RA/Dec corrections is to connect the GTOCP3 and GTOAE boxes to each other and to the mount. Apply power to both and use the keypad as normal.

The Absolute Encoder mount ships with the encoders turned on (encoder state is remembered through power-cycles), but with the Home and Limits turned off. You do not even have to install the utility to reap the benefit of PE correction! The illustration below shows the basic connections. Remember that you will need to connect the power cables to your power source.



- | | |
|--------------|---|
| 1. CABCP3AE | Cable from GTOCP3 to GTOAE Control Box for 1600GTO |
| 2. CAB16AE | 1600 Cable from R.A. Backplate to GTOAE Control Box |
| 3. CABGTOR19 | 19" Extension Cable between GTOCP3 Control Box and 1600GTO R.A. Backplate |
| 4. Keypad | |
| 6. CABLPF | 8' Locking Power Cables (not shown) |

Note: The two Locking Power Cables (CABLPF) are not shown in diagram to avoid clutter and provide clarity)

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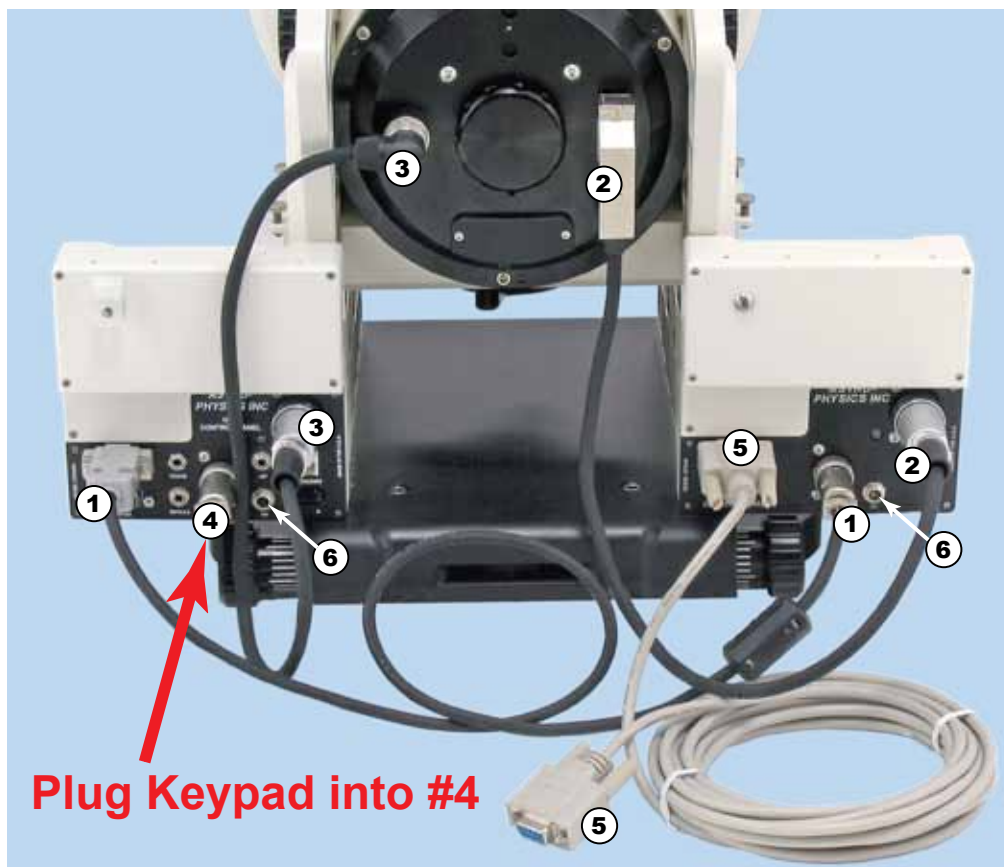
Control with Keypad and Computer

(Absolute Encoder Correction Active - No Home or Limits)

You can easily add computer connectivity to the preceding “simple” setup.

As previously stated the Absolute Encoder mount ships with the encoders turned on, but with the Home and Limits turned off. You do not even have to install the utility to reap the benefit of RA/Dec encoder corrections!

The illustration below shows the basic connections. Connect your computer directly to the GTOAE box (mount control will run through it to the GTOCP3). Be sure to properly select the COM port. Remember that you will need to connect the power cables to your power source.



- | | |
|--------------|---|
| 1. CABCP3AE | Cable from GTOCP3 to GTOAE Control Box for 1600GTO |
| 2. CAB16AE | 1600 Cable from R.A. Backplate to GTOAE Control Box |
| 3. CABGTOR19 | 19” Extension Cable between GTOCP3 Control Box and 1600GTO R.A. Backplate |
| 4. Keypad | |
| 5. CABSER15 | 15’ Straight-through, Serial Cable - for APCC and/or AP V2 driver (or other software) computer connection |
| 6. CABLPF | 8’ Locking Power Cables (not shown) |

Note: The two Locking Power Cables (CABLPF) are not shown in diagram to avoid clutter and provide clarity)

1600GTO

Absolute Encoder Hardware Connections

For full functionality, there are two recommended hardware configurations for attaching the cables to the GTOCP3 and GTOAE boxes. One configuration is for those who have remote setups where the keypad is NOT connected to the mount. The second configuration is for those who either use their keypads regularly, or who may occasionally use the keypad for centering or other purposes and who would like to have the keypad port available.

Please keep in mind from the outset that the AP Absolute Encoder Utility does NOT normally need to be running for regular operation. The APAE Utility is used for the following tasks:

- Use the APAE Utility to set up your Home and Limits. This is done when you first set up the system, and must also be done any time the mount is moved via the clutches.
- Use the utility if you make a mistake and get the mount lost. This is the “Find Home” feature.
- Use the utility if you wish to turn limits off or back on for any reason. For example, you may wish to track an object past your RA limits if it is at a safe declination.
- Apart from these situations, the APAE Utility does NOT need to be running on your computer for regular day-to-day operation.

Also, keep in mind that the GTOAE box ***MUST*** be connected to the ***TOP*** port of the GTOCP3 using the CAB11CP3AE (see diagrams).

If you will be using the keypad either as a primary control device, or as a secondary aid to your observing and imaging sessions, you will want to keep the keypad’s serial port on the GTOCP3 available. You will then be using the GTOAE box for ALL of your computer connections. Since the AP V2 driver is a hub, and since APCC (optional) has virtual ports, you should be able to connect all of your software to the mount through the GTOAE box’s port. In the rare event that you need the APAE Utility, you can simply temporarily disconnect the other software from the mount while you run the utility, and then reconnect. This is all done from the computer with no need to touch any cables.

If you will be operating the system remotely, and do not plan on having the keypad connected, we suggest that you use the keypad’s serial port for your normal PC connection to the mount. This has two advantages. 1. It leaves the APAE Utility available without forcing any disconnections. 2. It provides a secondary connection to the mount should the first serial port on your computer fail.

The two diagrams that follow show how to connect your cables for each of these options.

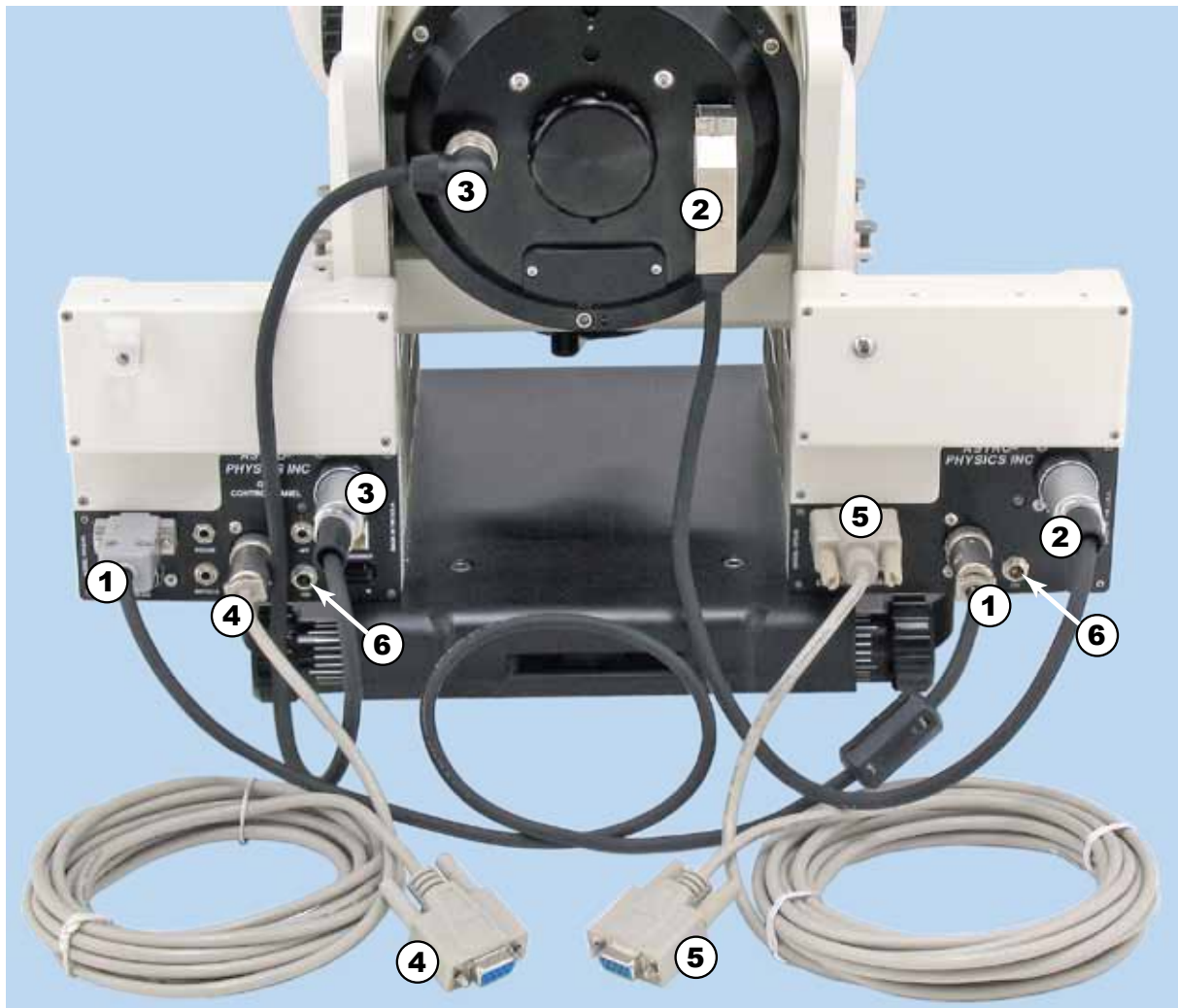
Sidebar Note: Most commonly you will have set up your AE mount using both serial cables...one to the CP3 box’s keypad (5-pin Hirose) connector and one to the AE box’s serial (DB-9) connector. Your PC will have assigned a COM port number for each of its serial ports. For sake of example, let’s assume that the CP3 is connected to COM2 and the AE is connected to COM4.

After you have the AE Utility’s Home and Limits set up as you wish and turned on you can do either of two things. You can leave both cables as they are (probably best for a remote operation) or you can replace the CP3 serial cable with the Keypad for hand use.

If you choose to use the Keypad option, then you will also need to change your mount control software (APCC or AP V2 driver) connection from COM2 to COM4 so that mount control runs through the AE box. Both the APAE Utility and the mount control will now address the same COM port. This means that they can only be run separately.

By the way, if you wish, and if you have another available serial port, you may always use the lower port of the GTOCP3 as a backup. It, however, has a somewhat slower control chip and should not be used as a primary port for connection to the PC or the GTOAE box.

Dual Cable Operation (Remote)



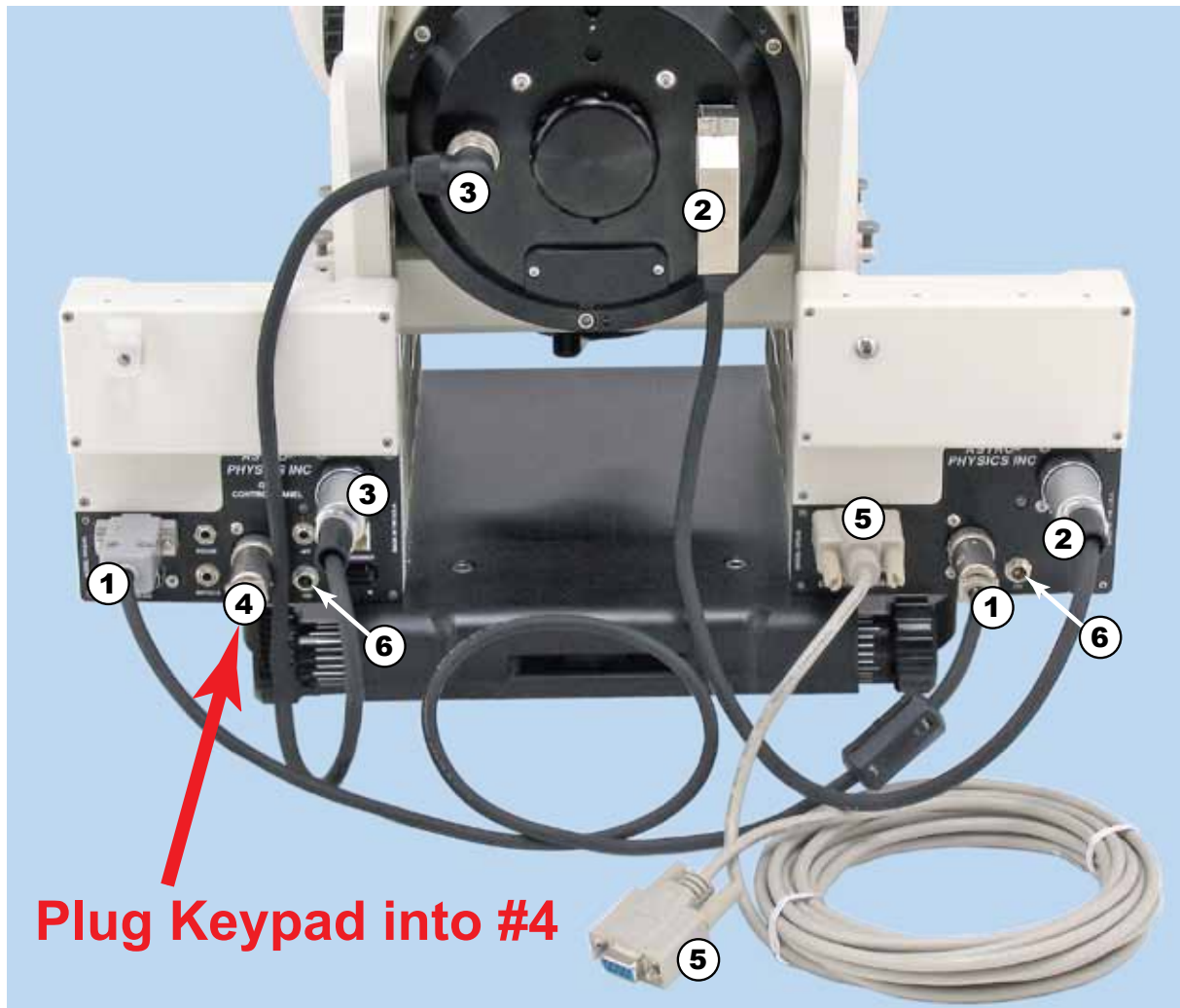
**APCC and/or AP V2 Driver Connection
COM2 (example)**

**AE Utility Connection
COM4 (example)**

- 1. CABCP3AE** Cable from GTOCP3 to GTOAE Control Box for 1600GTO
- 2. CAB16AE** 1600 Cable from R.A. Backplate to GTOAE Control Box
- 3. CABGTOR19** 19" Extension Cable between GTOCP3 Control Box and 1600GTO R.A. Backplate
- 4. CABK9S15** 15' Serial Cable for Keypad Receptacle - for APCC and/or AP V2 ASCOM driver or Other Software computer connection
- 5. CABSER15** 15' Straight-through, Serial Cable - for AP Absolute Encoder Control Utility computer connection
- 6. CABLPF** 8' Locking Power Cables (not shown)

Note: The two Locking Power Cables (CABLPF) are not shown in diagram to avoid clutter and provide clarity

Single Cable Operation with Keypad



APCC and/or AP V2 Driver Connection
OR AE Utility Connection
COM4 (example)

- | | |
|--------------|---|
| 1. CABCP3AE | Cable from GTOCP3 to GTOAE Control Box for 1600GTO |
| 2. CAB16AE | 1600 Cable from R.A. Backplate to GTOAE Control Box |
| 3. CABGTOR19 | 19" Extension Cable between GTOCP3 Control Box and 1600GTO R.A. Backplate |
| 4. Keypad | |
| 5. CABSER15 | 15' Straight-through, Serial Cable - for APCC and/or AP V2 ASCOM driver <u>OR</u> AP Absolute Encoder Control Utility (or other software) computer connection |
| 6. CABLPF | 8' Locking Power Cables (not shown) |

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