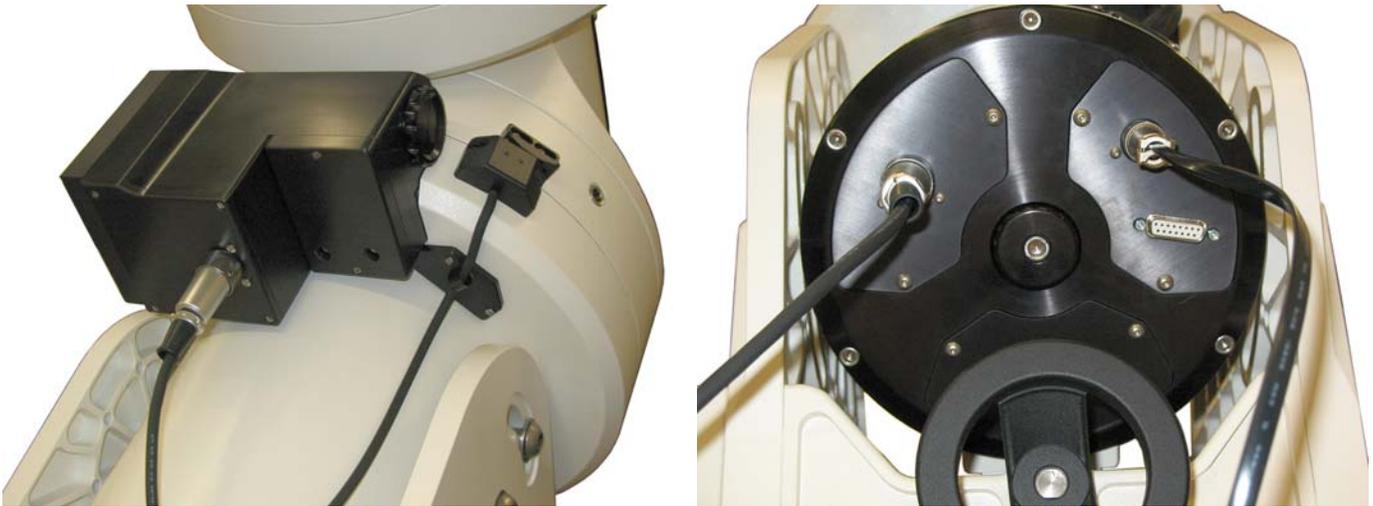


ASTRO-PHYSICS

Limit/Homing Switch System for the 3600GTO and 3600GTOPE

Optional switches can be installed to control operation past the meridian and for homing. All mounts will be drilled and tapped to accept this option. You can either order the mount with the limit switches installed by Astro-Physics (part # 36LSS) or it can be added as an upgrade later and installed by the customer (part # 36LSSKIT).

The limit switch/homing switch option can be configured several different ways, depending on the needs of the user. This flexibility is in keeping with our modular philosophy. Not everyone will need all the functions of these switches, so we will leave it up to the user to choose how the switches should be configured.



Simple Limit and Home Switch Option

The simplest option is to install the switches and wire the normally closed contacts directly into your power line. A simple user activated manual override switch can then be wired in parallel with the limit switch. This switch is operated by the user to re-power the mount so that the scope can be safely slewed back to the proper side of the mount via a Go-To command. The switch module also contains the homing switch, which can be used to determine when the mount has reached the home position (basically pointing the scope to the eastern horizon). There is one homing switch for the RA and one for Dec. The limit switches are only for RA (the Dec must be allowed to go 360 degrees in order to cover the entire sky). In order to use the homing switch, the user would need to wire it into his own circuit, if the optional control circuit is not purchased.

The way it works is then very simple. When the scope passes the meridian, the limit switch activates and simply cuts power to the servo. This stops the mount from tracking or slewing further, protecting the scope from potentially banging into the pier. The normally open contact can be wired to a 12 volt bulb or buzzer, which can alert the user that the mount has reached the maximum limits and is now stopped. This method of cutting power directly to the mount does not require any more electronic circuitry, and is the most foolproof way to stop the mount from exceeding the movement limits. It is not affected by lightning strikes, power surges or computer failures and will override any false commands from any outside source.

Parts Required:

36LSS Limit and Homing Switch System for 3600GTO (ordered at time of manufacture)
Or
36LSSKIT Limit and Homing Switch System for 3600GTO (ordered as an upgrade)

Switch to Activate Software Limits

This option ties the switches into the servo via a secondary control circuit (GTOELS Control Box, purchased as a separate item). This circuit looks at the state of the switches and sends a signal to the mount servo to stop motion of the scope past a certain point beyond the meridian. This circuit can be controlled via software to activate the limit switches, and to sense the home position. The information from the switches will be used by the servo and by our upcoming Astro-Physics Control Center (APCC) software by Ray Gralak (used on your PC) to do more intricate control functions that cannot be done with the switches alone. Using the signals from the secondary control circuit, the servo will make decisions as to which way the mount can safely slew after the limits have been reached.

If, for any reason, the mount is lost, the information from the east limit, west limit, and homing switch is used by our APCC software to re-establish the pointing accuracy of the mount.

Since the limit switches can be software controlled, they can be de-activated for situations where the scope can safely track past the meridian. This allows the user to continue to image well past the meridian if it is safe to do so. The upcoming APCC software will allow you to set those limits via software so that remote operation is possible with complete safety.

Parts Required:

36LSS	Limit and Homing Switch System for 3600GTO (ordered at time of manufacture)
Or	
36LSSKIT	Limit and Homing Switch System for 3600GTO (ordered as an upgrade)
CAB36LS	Cable that connects Limit Switch System to GTOELS Control Box
GTOELS	Encoder/Limit Switch Control Box (3600GTOPE already has this control box)
APCCA	Astro-Physics Control Center Software, advanced edition (available at a later date)