

# Schulman Telescope Hand Paddle

The hand paddle used at the Schulman Telescope is technically an non-optimized device for the LCOGT controller. The controller (like most of its kind) was designed for semi-professional operation and research and not so much for “starparty” type usage. Thus this paddle has some “features” that should be known before using it.



- The Red button at the top of the paddle is an Emergency Stop (E-Stop) plunger. Pressing this button will de-energize the brakes (causing them to clamp down) and disconnect the drives from the telescope. The E-stop plunger on the [telescope controller](#) works in the same way. Gently twist an engaged E-stop plunger to release it.
- Moving the joystick will send commands to the controller to move the telescope. In this implementation moving the joystick will result in a single commanded JOG (moving the telescope of a set number of arcminutes). The behavior is NOT as is customary with the paddle moving the telescope continuously while using the joystick (like a remote controlled toy or video game). Holding the joystick in a particular direction will not initiate further motion. The joystick must be permitted to return to the neutral (central) position for another JOG. In addition, a first JOG must be completed with the telescope settling to the new position before another JOG will

be possible.

- The magnitude of the JOG is determined by adjusting the not-currently-well-named *SPEED* knob. Recommended JOG magnitudes for centering in an eyepiece are 1-5. The largest jogs move the telescope a degree or more. If the telescope servos are not tuned properly (or the telescope is out-of-balance) this can be problematic.
- The other knobs and buttons are not currently in service (including the station, “Fast”, or “Next/park”).

### **NOTE: Paddle Error from Experience!**

If the paddle is ever inadvertently dropped, there is a small chance the E-stop will be pressed. This will do its job and bring the system to a halt- but no sirens will be heard. (It should be possible to hear the brakes clamp down...but in a crowded observatory filled with people this may not be obvious. The E-Stop light on [the controller](#) will light up.) The telescope tracking will suddenly be observed to be OFF. In order to recover, the fault must be cleared using the LCOGT GUI.

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