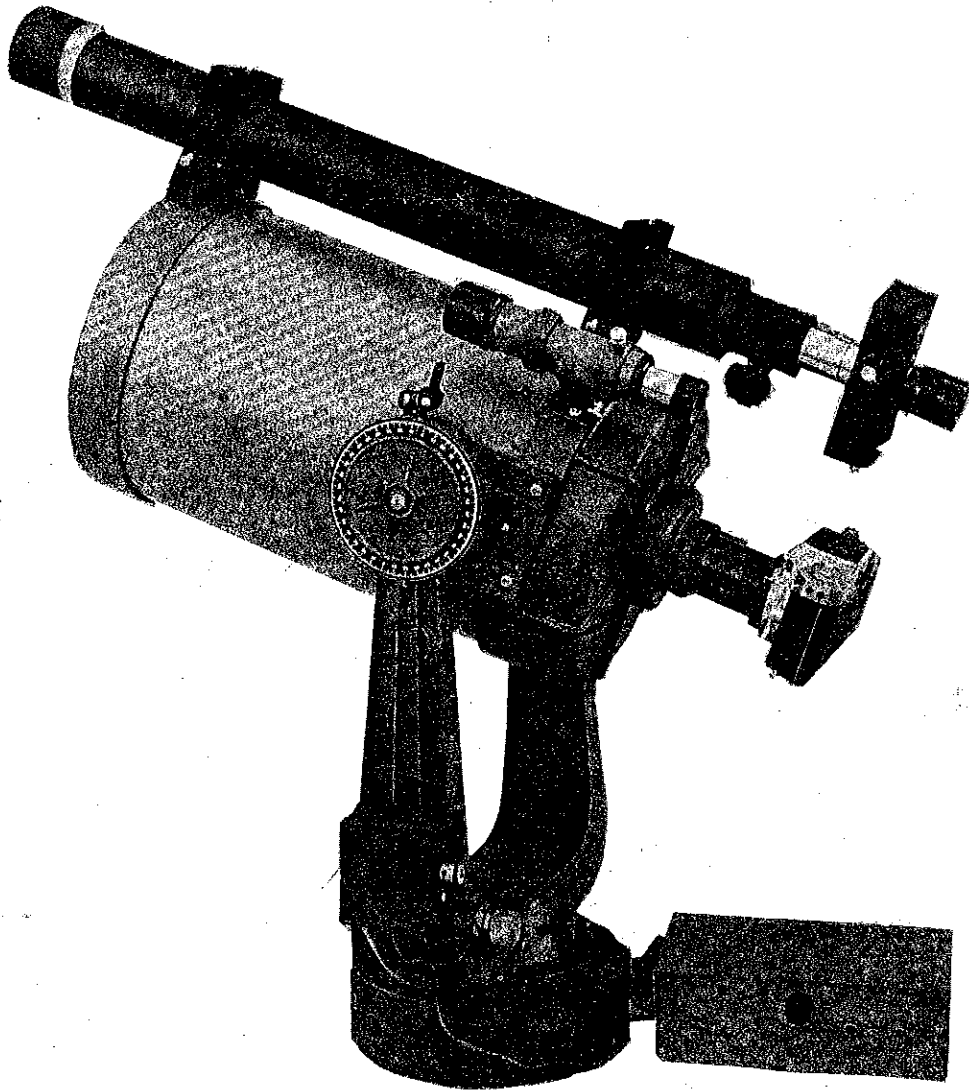


*Astro - Physics*

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## TELESCOPE CONTROLS



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**2703 Hampden Ct.  
Rockford, Illinois 61107  
Phone (815) 226-1471**

**ASTRO-PHYSICS** telescope controls are designed for field use as well as for permanent observatories. Simple wiring facilitates rapid setup. All products are manufactured with the most advanced integrated circuits and electrical components. Circuits are fully operable under temperature extremes of  $-50^{\circ}\text{F}$  to  $+160^{\circ}\text{F}$ . Fiberglass printed circuits are treated with moisture resistant coating, eliminating drift and erratic operation, even in heavy dewing conditions. All units are fully tested and guaranteed against failure due to materials or workmanship for one year. There is no charge for in warranty repairs and return shipping. Satisfaction is guaranteed. A full refund is allowed on any item returned within 30 days.



model no. 7001

The **SINGLE AXIS STAR TRACKER, model no. 7001**, automatically corrects the right ascension drive speed rapidly and with greater accuracy than with manual guiding and eliminates the periodic error inherent in the clock gears of most commercial telescopes.

The tracker mounts into a standard 1-1/4" eyepiece holder on a guide scope or off-axis guider. Other size mountings are available at no extra charge, upon request.

The unit features an adjustable focus eyepiece of 22mm focal length and an illuminated reticle for guiding in declination. An offset control eliminates the effect of background skylight and allows for variation in guide star brightness. A built-in LED indicator verifies proper operation during an exposure. Modern integrated circuitry provides high sensitivity for tracking on faint guide stars. The photodetector is a special blue sensitive photocell designed to give maximum response over the full spectrum. The beam splitter design allows the observer to observe the guide star while the tracker is in operation. The beam splitter is a small diagonal mirror, polished to a knife edge. This knife edge is the right ascension reference for the guide star. When the tracker is coupled to a drive corrector such as our model #8001, or another suitably modified corrector, the photodetector will

keep the guide star steady on the knife edge. Declination corrections are made manually, using the built-in illuminated crosshair. The tracker comes in a light tight cast aluminum housing to prevent stray light from leaking into the photodetector.

Since accurate polar alignment is essential for minimizing declination drift, a simple, fast and effective way to align on the pole is supplied with each star tracker.

A simple diagram, showing how the star tracker may be coupled to most right ascension drive correctors, will be included upon request.

**tracking accuracy** - equals the diameter of the star image (1 to 3 seconds of arc, depending on aperture).

**built-in illuminated crosshair** - allows adjustment of the declination axis.

**adjustable focus eyepiece** - 22mm focal length.

**spectral response** - extends from the near ultraviolet to the far infrared.

**sensitivity** - 3" aperture - 5th magnitude, 8" aperture - 7th magnitude.

**power supply** - internal 9 volt alkaline battery.      **size** - 4-1/2" x 2-1/2" x 1".      **weight** - 0.6 lb.

The **DUAL AXIS STAR TRACKER, model no. 7002**, is a fully automatic guiding device which corrects both right ascension and declination axes. The unit is small, lightweight, and mounts into a standard 1-1/4" eyepiece holder of a guide scope. Other size mountings are available at no extra charge, upon request. An offset control eliminates the effect of background skylight and allows for variation in guide star brightness. Two built-in LED indicators verify proper operation during an exposure. The tracker comes in a light tight cast aluminum housing to prevent stray light from leaking into the photodetector. The high sensitivity photodetector is a special blue sensitive photocell designed for maximum response over the full spectrum.

The unique prism beam splitter is a precision crossed knife edge which splits the guide star two ways for automatic tracking in both axes. The guide star can be seen in the 18mm eyepiece while the tracker is in operation.

The dual axis star tracker requires a dual axis drive corrector, such as our model #8002, and a D.C. or reversible A.C. motor attached to the telescope declination slow motion.

The dual axis guiding system requires no adjustments during an exposure freeing the astrophotographer for other observation. Long time exposures are possible without having to be near the telescope.

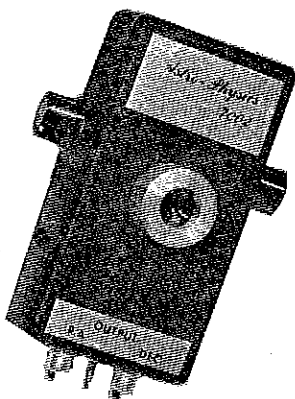
**tracking accuracy** - equals the diameter of the star image (1 to 3 seconds of arc depending on aperture).

**spectral response** - extends from the near ultraviolet to the far infrared.

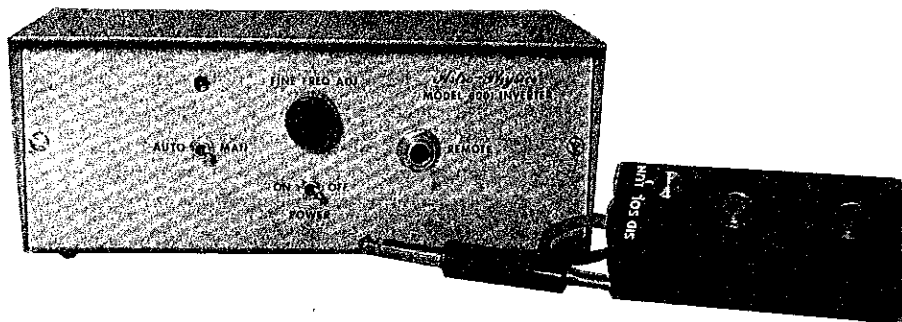
**sensitivity** - 3" aperture - 5th magnitude, 8" aperture - 7th magnitude.

**power supply** - internal 9 volt alkaline battery.

**size** - 4-1/2" x 2-1/2" x 1".      **weight** - 0.6 lb.



model no. 7002



**model no. 8001**

tracker input for automatic operation and a remote control which can be unplugged for easy handling and storage. The remote control has fast/slow push buttons for manual guiding corrections and a switch for sidereal, solar and lunar rates. A front panel control allows fine adjustment for the preset rates.

**frequency stability** -  $\pm .0025\%$  per degree F.

**power supply** - 115 volts, A.C. or 12 volt, D.C. (foreign orders specify).

**a.c. output** - 115 volts, 45 - 75 Hz, 20 watts (foreign orders specify)

**fine adjustment** - varies frequency 1%.

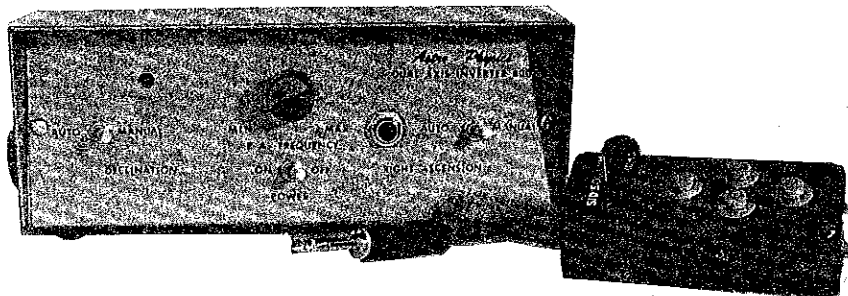
**remote control** - fast/slow buttons, 45 and 75 Hz.

**case** - aluminum enclosure

**size** - 3-1/4" x 5" x 8"

**The SINGLE AXIS DRIVE CORRECTOR, model no. 8001** is the finest integrated circuit, oscillator speed control for the right ascension axis. Modern integrated circuits provide high stability operation from  $-60^{\circ}$  F to  $+165^{\circ}$  F. The built-in power supply runs off 115 volt A.C. house current or a 12 volt car battery, eliminating the need to buy an expensive D.C. converter. For foreign orders, different voltage and frequency power supplies are available at no extra charge. A battery cable with alligator clips is included.

This inverter comes complete with star



**model no. 8002**

selectable lunar, solar and sidereal rates are preset to save time. A fine adjustment allows exact trimming of the drive rates. The unit comes with 115 volt, A.C. and 12 volt, D.C. inputs. For foreign orders, different voltage and frequency power supplies are available at no extra charge. Battery cables with alligator clips are included.

The declination portion of the dual axis drive corrector is designed to control a D.C. motor attached to the declination axis. Options include a modification to control a reversible A.C. motor in declination and a full joystick control instead of the standard push button remote.

**frequency stability** -  $\pm .0025\%$  per degree F.

**power supply** - 115 volt, A.C., or 12 volt, D.C. (foreign orders specify).

**a.c. output** - 115 volts, 45 - 75 Hz, 20 watts (foreign orders specify).

**d.c. output** - 10 volts, 5 watts.

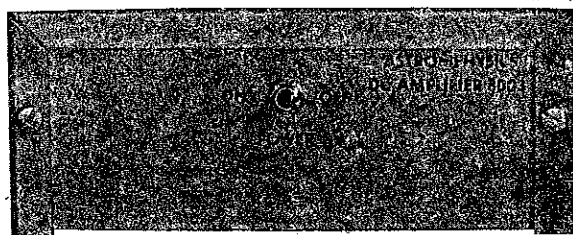
**fine adjustment** - varies frequency 1%.

**case** - aluminum enclosure.

**size** - 3-1/4" x 5" x 8"

**The DUAL AXIS DRIVE CORRECTOR, model no. 8002** controls both axes for any telescope with a standard 115 volt, 60 Hz clock drive on the right ascension axis and a low speed reversible motor (such as our model #601) on the declination axis.

A front panel switch allows selection of automatic or manual operation for either axis. The remote control comes with four fast/slow push buttons, arranged conveniently in a cross configuration. The dual axis star tracker attaches directly for full automatic operation in both axes. Switch



**model no. 8003**

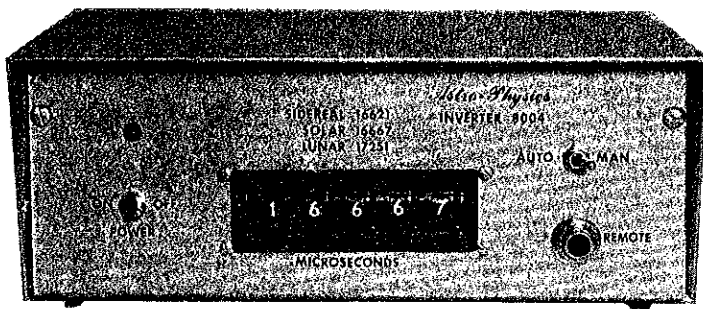
**power supply** - 115 volt, A.C. or 12 volt, D.C. (foreign orders specify).

**d.c. output** - 10 volts, 5 watts.

**case** - aluminum enclosure.

**size** - 2-1/4" x 3" x 5-1/4".

**The D.C. AMPLIFIER, model no. 8003**, for the declination axis, is designed for telescopes already equipped with a right ascension drive corrector. This unit contains the declination portion of the dual axis drive corrector. A 115 volt, A.C. and 12 volt D.C. power supply is a standard feature. Different voltage inputs are available for foreign orders at no extra charge. The declination amplifier is designed to control a D.C. motor such as our model #601. An optional modification to control a reversible A.C. motor is available.



**model no. 8004**

The exact lunar, solar and sidereal tracking rate can be selected on the front panel, thumbwheel switches. A fast/slow push button remote control is a standard feature. The power source is 115 volts, A.C. or 12 volts, D.C. Battery cables with alligator clips are included.

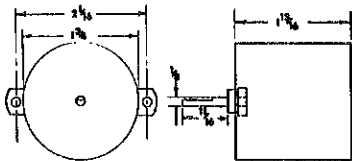
A right ascension input for an automatic star tracker is optional. This inverter may also be ordered with declination control for a D.C. motor and automatic star tracker inputs for both axes.

**frequency stability** - .00005% per degree F.

**power supply** - 115 volts, A.C. or 12 volts, D.C. (foreign orders specify).

**a.c. output** - 115 volts, A.C., 50 - 70 Hz, 20 watts (foreign orders specify).

**case** - aluminum enclosure. **size** - 3-1/4" x 5" x 8".



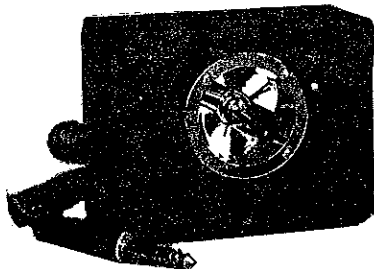
**model no. 601**

**The D.C. MOTOR, model no. 601**, is for telescopes not equipped with electric declination.

**output** - 1 RPM @ 12 volts D.C., 65 inch ounces torque.

**shaft size** - 1/8" diameter, 11/16" length

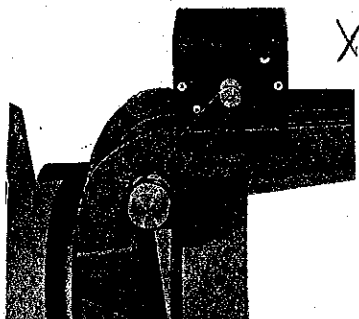
**size** - 1-3/4" x 1-13/16"



**model no. 602**

**The JOYSTICK CONTROLLER, model no. 602**, makes all other forms of manual control obsolete. This system is a proportional controller, not a four switch joystick. The controller features infinite variability, permitting fine adjustment of the guide star in any coordinate. The joystick plugs directly into our model #8002, dual axis drive corrector in place of the standard push button remote. Trim tabs are included for fine adjustment.

**size** - 2" x 3-1/4" x 4-1/2"



**model no. 603**

**The DECLINATION DRIVE, model no. 603**, is specially designed for the Celestron 8. The drive mounts without any machining and detaches in seconds. The telescope folds easily for storage with the drive attached. The unique slip clutch system allows manual adjustment of the declination axis without removing the drive. The drive motor gives smooth, accurate control in the automatic or manual mode.

The declination drive is available in two different mounting styles. When placing an order, be sure to specify whether your Celestron 8 has the old style fork arms, with holes, or the new style, with ridges.

**motor type** - 12 volts, D.C. **size** - 2" x 2-1/2" x 2"

**CUSTOM ORDERS** In many cases, **ASTRO-PHYSICS** can make special modifications to satisfy your individual needs, such as an inverter with an output for an illuminated reticle eyepiece, output power greater than 20 watts or D.C. motors with output speeds other than one rpm. We will also custom modify your present drive corrector for either single or dual axis automatic operation. Write for individual quotes, giving details of your system and special requirements.

*MM*

*126.35*  
*8995*  
*2435*  
*3*  
*295*  
*1.50*

*2635*

**ordering information** - When ordering by mail, be sure to include your complete street address. Illinois residents must include current state sales tax. Domestic orders will be shipped U.P.S. All shipments are insured for full value. Inspect packages carefully upon receipt and notify the carrier of any damage. Be sure to specify model numbers and options or special modifications when placing your order.

**method of payment & shipping charges** - A check or money order included with your order is the best method. We pay full shipping charges on pre-paid U.S. orders. Shipping and C.O.D. charges will be added to the amount of C.O.D. purchases.

**delivery time** - Most **ASTRO-PHYSICS** products are kept in stock at all times. Upon receipt of your order, you will be notified of approximate shipping time. Special orders and modified systems require an additional 2 to four weeks.

**canadian orders** - Payment must be in U.S. dollars, either bank check or money order, pre-paid. Send \$5.00 to cover additional shipping and handling costs. Canadian orders are shipped Parcel Post and insured for full value.

**foreign orders** - Payment must be in U.S. dollars, by international money order or a check drawn on a U.S. bank. Foreign orders will be shipped Air Parcel Post and insured for full value. Shipping charges are additional. Write for exact charges. Specify your intended order. Be sure to specify voltage and frequency requirements.

*145*  
*125*  
*98*  
*318.00*  
*126*  
*192*

# PRICE LIST

(Effective August 1, 1976)

MODEL NO.	DESCRIPTION	PRICE
7001	Single axis star tracker .....	\$ 98.00
<b>7002</b>	Dual axis star tracker .....	\$145.00
8001	Single axis drive corrector .....	\$ 98.00
<b>8002</b>	Dual axis drive corrector .....	\$125.00
	Modification to control A.C. and D.C. motor .....	\$ 15.00
	Model #602, joystick controller .....	\$ 58.50
8003	D.C. amplifier.....	\$ 70.00
	Modification to control A.C. and D.C. motor .....	\$ 15.00
8004	Crystal controlled drive corrector .....	\$195.00
	Automatic input for right ascension.....	\$ 10.00
	R.A. and DEC control with star tracker inputs .....	\$ 30.00
601	D.C. motor .....	\$ 15.00
<b>603</b>	Declination drive .....	\$ 48.00

ILLINOIS RESIDENTS ADD 5% STATE SALES TAX

*from old style forks*