

# AXD Equatorial Mount

Designed for both  
**“Superior Performance”**  
 and **“Ease of Use”**

Vixen’s renowned ATLUX equatorial mount has evolved into the revolutionary ATLUX DELUX (AXD) Equatorial Mount. With more accurate tracking, the AXD Mount is ideally suited for high resolution digital photography. The new AXD mount has superior quality and performance, taking the Vixen Equatorial Mounts to a new level. As with all Vixen products, ease of use, quality, and attention to detail are evident in this new mount.

AXD Equatorial Mount

36911

## AXD Mount

• With STAR BOOK TEN



NEW

36916

AXD-TR102 Tripod

36915

AXD Half Pillar

36917

AXD-P85 Pillar

36918

AXD Large Accessory Plate

36912

AXD Counterweight 1.5 Kg (3.3 lb)

36913

AXD Counterweight 3.5 Kg (7.7 lb)

36914

AXD Counterweight 7.0 Kg (15.4 lb)

Model	AXD Equatorial Mount
R.A Slow Motion	270-tooth full circle micro-movement gear, 135mm in diameter, Brass wheel
DEC. Slow Motion	216-tooth full circle micro-movement gear, 108mm in diameter, Brass wheel
Worm Gears	14mm in diameter, Brass
R.A. Axis	50mm in diameter, A7075 Aluminum alloy
DEC. Axis	50mm in diameter, A7075 Aluminum alloy
Number of Bearings	21 pieces (6 pcs for the R.A Axis, 4 pcs for the DEC. Axis, 2 pcs each for the R.A and DEC. worm gear shafts, 2 pcs each for the R.A. and DEC. super gears, 3 pcs for the R.A. setting circle)
Counterweight Bar	25mm in diameter, Retractable
R.A. Setting Circle	10 minutes increments, accessible to 1 minute by vernier reading
DEC. Setting Circle	2 degrees increments, accessible to 10 minutes (about 0.167°) by vernier reading
Polar Axis Scope	Built-in 6x20mm scope, FoV 8 degrees, Bubble level, Illuminated reticle, Setting accuracy within 3 minutes, Time graduation circle: 10 minutes increments between 16h and 8h (the following day) Date graduation circle: 2 days increments Meridian offset circle: Adjustable between E20 degrees and W20 degrees in 5 degrees increments Northern hemisphere: Polaris pattern with reticle (Applicable to year 2025) Southern hemisphere: Octant 4 stars pattern with reticle
Azimuth Adjustment	Coarse setting : 360 degrees, Fine adjustment : About ±7 degrees, Twin tangent screws/knobs : About 1 degree per rotation
Altitude Adjustment	Latitude between 0 degree and 70 degrees (3 divided adjustments: ±15 degrees per zone), 2 degrees increments, 3 altitude zones (For high, middle and low latitude) Twin T-bar handles: 0.5 degrees per rotation
Drive Motor	Stepping (Pulse) motors with 400PPS
Automatic Slewing / Tracking	“GO TO” with STAR BOOK TEN, Maximum 800x sidereal rate / Precision tracking with micro-step motion control system
Maximum Payload	30 kg (66 lb) (750kgs · cm torque load : About 30kgs at a point of 25cm from the fulcrum)
STAR BOOK TEN Port	D-SUB 9PIN male plug
Electricity Terminal	DC12V EIAJ RC5320A Class4
Power Source	DC12V · 0.4 ~ 1.7A
Dimensions	457 x 465 x 152mm
Weight	25 kg (55.1 lb) without counterweight
Counterweight	7 kg (15.4 lb) x 1 pc

## Features of AXD Equatorial Mount

### Sturdy yet Light Weight

Strong and durable A7075 aluminum alloy is used for the R.A and DEC. axes on the AXD mount. The A7075 material is stronger than titanium and has a specific gravity 38% less than titanium. This makes the AXD mount very sturdy yet truly portable.

### Smooth Movement

A total of 21 bearings are used in the mount’s movable parts, for smooth movement and precise slewing of the AXD mount. The bearings are used in the following places: 6 for the R.A. axis, 4 for the DEC. axis, 4 for the worm gear sockets, 4 for the motor intermediate gear sockets and 3 for the R.A. setting circle. Types of the bearings are: Ball Bearings (13), Angular Bearings (4), Tapered Roller Bearings (2) and Needle Bearings (2).

### Solid R.A. Worm Wheel

The AXD mount has an R.A. axis 50mm (about 2 inches) thick and it is 20% larger when compared to the ATLUX. The brass R.A. worm wheel has 270 teeth, which contributes to the precise tracking of the AXD mount.

### Minimum Backlash

The stepping motors control the rotation of the gears from low to high speed by means of Vixen’s unique micro-step motion control system. This eliminates the need for numerous reduction gears in the motor gear train resulting an excellent decrease in backlash.

### Precision Stepping Motor

Vixen’s precise micro-step motion control system generates 400 signal pulses per second on the stepping motor. The accurate rotations guarantee that the AXD mount exhibits excellent performance and responsiveness. The stepping motors have a torque strong enough to slew a payload of 30 kg (66 lb).

### Advanced Motor Layout

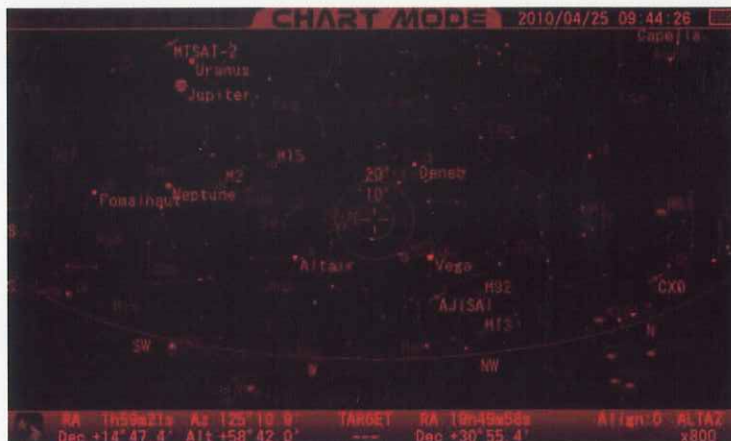
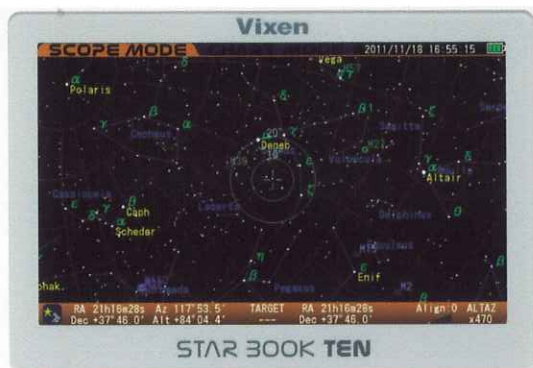
The built-in R.A and DEC motors are placed in the lower part of the declination body on the AXD mount, the same design that has been so successful in the Sphinx Mounts. This brings the center of balance of the declination body under the crossing point between the R.A. and DEC. axes and serves as a portion of counterweight. Moreover, the short distance from the crossing point to the mount head is a configuration designed to lighten a heavy counterweight.

### VPEC Periodic Error Correction

The periodic motions of all the AXD mounts are individually measured at Vixen’s factory for accurate performance and precise periodic error correction. The periodic error, which is measured by the VPEC, is recorded on nonvolatile memory inside the mount and it is not lost when you turn off the power. This is a great advantage to both novice and serious astrophotographers, enabling you to take impressive astrophotographs with surprisingly less failure. Also you can add your own PEC to the VPEC to raise the tracking accuracy as the occasion demands.

# STAR BOOK TEN

NEW



Night Vision Screen

TEN in Japanese means "The Heavens" and this mount will get you there with ease. With observatory quality controls, popular objects appear on the High Definition screen and the STAR BOOK TEN "SEE-TO" technology shows you the sky before the GO-TO sends you there. With the ability to zoom to any area you can easily find your target object. When you have viewed all 270,000+ objects, you can enter and save your own discoveries. No computer needed with the STAR BOOK TEN.

Hand Controller	STAR BOOK TEN
CPU	32bit RISC Processor 324MHz SH7764
Display	5-inch TFT color LCD WVGA (800 x 480 pixels), with backlighting
Electricity Terminal	DC12V EIAJ RC5320A Class4
Autoguider Port	6-pole 6-wired modular jack (For external unit)
LAN Port	10BASE-T
Mount Connect Port	D-SUB 9PIN male plug
Extension Slot	For an optional Extension unit (Autoguider)
R.A. & DEC. Display	R.A.: 1s increment, DEC.:0.1 minute increment
Power Source	DC12V (Power is supplied from the mount side.)
Power Consumption	About 0.25W (Stand alone unit)
Dimensions	169mmL x 154mmW x 30mmH
Weight	400 g (14.11 oz), Excluding the cables and optional extension unit.
Celestial Object Database	272,342 (SAO : 258997, NGC objects : 784, IC objects : 5386, Messier objects : 109*, 7 Planets, 1 quasi-planet, the Moon and the Sun). *M40 is a missing number. M91 and M102 are also listed as NGC4548 and NGC5866 in the database.
Menus and Major Functions	•Automatic Go To Slewing •Sidereal tracking and different tracking rates for the Sun, the Moon, planets, comets and artificial satellites •Backlash compensation •VPEC •Permanent PEC •Autoguider application •Night vision screen •Bilingual interaction (Japanese / English) •Brightness control, Hibernate mode •Built-in speaker •LAN connection updating

## Features of STAR BOOK TEN

### High Definition Color LCD Screen

The STAR BOOK TEN displays astonishingly clear visible information on its 5 inch High Resolution screen. Phased star charts and many useful functions can be intuitively operated by all level of astronomers. The CPU processing speed of the STAR BOOK TEN is 5 times as fast as the STAR BOOK and it allows you to enjoy clear and smooth star chart navigation on the screen with easy to use operations.

### Night Vision Screen

The STAR BOOK TEN screen can be displayed with monochromatic red light in order to maximize accommodation of your eyes to darkness. The operating buttons can also be lit in red.

### Hibernate Mode

After choosing to continue the current setup at the initial screen, you can break and restart your automatic slewing and tracking of the AXD mount by just flipping the power switch, if the mount is still in place, without loosening the R.A. and DEC clamp levers.

### Celestial Object Database

The STAR BOOK TEN contains more than 270,000 celestial objects including Messier catalog, NGC, IC objects and the SAO star catalog. Celestial objects on the database can be easily searched by number or name. You can also register and save new celestial objects.

### VPEC and PPEC

The VPEC is Vixen's original periodic error correction preloaded on the AXD mount. The VPEC guarantees highly accurate tracking of the R.A. for successful astrophotography. The PPEC allows you to refine the VPEC which has a high level of tracking accuracy, by adding the result of your own periodic error correction. A record of the periodic error correction can be saved.

### Different Tracking Rates

The motion of the moon, the sun, planets and comets are different from fixed stars. The STAR BOOK TEN moves the AXD mount automatically in different tracking rates to precisely follow them.

### Artificial Satellite Watching

The STAR BOOK TEN has a useful menu to find and track artificial satellites by entering orbital elements of the artificial satellites. The ISS and named satellites are pre-registered.

### Extension Slot

The STAR BOOK TEN has space for an optional extension unit. The extension unit has video signal inputs for both NTSC and PAL and they allow you to capture and display moving images. The use of this image processing enables the STAR BOOK TEN to function as if it has a built-in autoguider. No external autoguiders are needed.

## What You will See in the STAR BOOK TEN

### High Definition Screen

The STAR BOOK TEN displays stars and constellations of the night sky, similar to those seen in a planetarium. The Chart mode allows you to scroll through the star chart without affecting your telescope position. The Scope mode synchronizes the motion of the telescope and the chart.

### Readout

The bottom of the screen indicates the position of the telescope, the target, and the rate of the slewing speed in relation to the size of the star charts.

### Zoom Keys

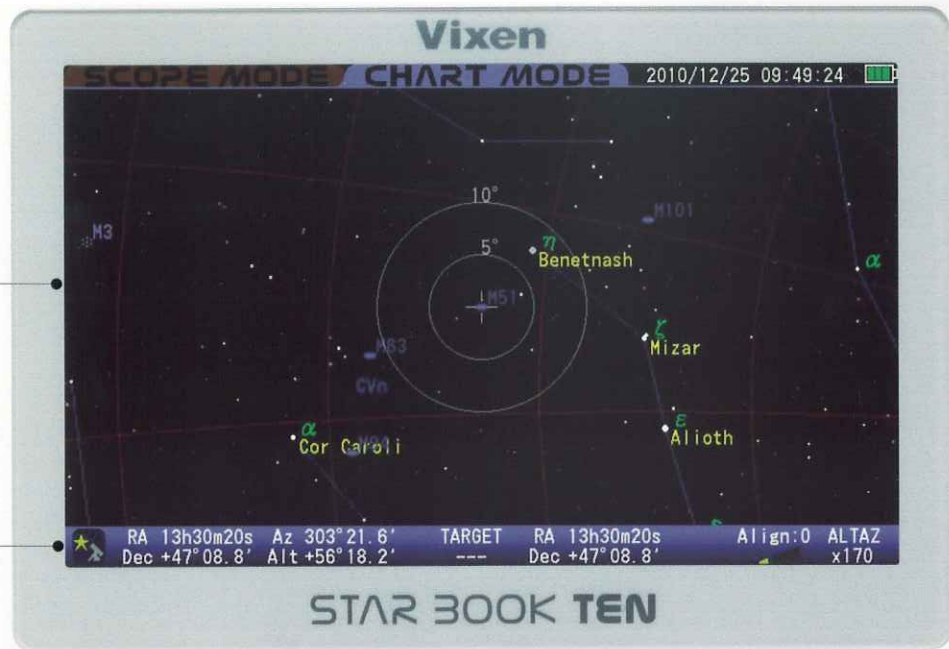
As you zoom the star chart out to a wide field, the slewing speed automatically increases. The slewing slows as you pinpoint your target area of the sky.

### Numerical / Command Keys

Easily access the various menus with the command keys. The target deep-sky objects can be identified by entering its coordinates or catalog number.

### Direction Keys

The key placements allow you to operate your telescope intuitively. With the alt-azimuth mode, using the left and right keys will slew the telescope in a horizontal direction and, using the up and down keys, move the telescope in a vertical direction. The keys are also used to move the cursor on the screen.



The STAR BOOK TEN shown here is actual size.

## Quad Element Design

Vixen's new AX103S, the effective aperture of 103mm (f/8.0), features a three element objective lens, incorporating a central ED lens. This reduces residual chromatic aberration far below the threshold of visibility in combination with the rear Field Corrector Lens and yields high contrast and clear images to the edges of the field of view.



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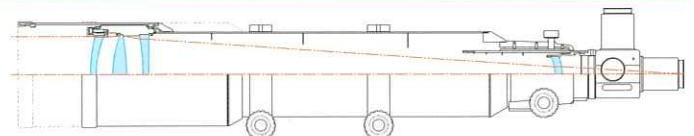
### AX103S Optical Tube Unit

With 7x50 finder scope w/illuminated reticle, flip mirror, dovetail plate and carry handle but without dual speed focuser and compression ring

5867

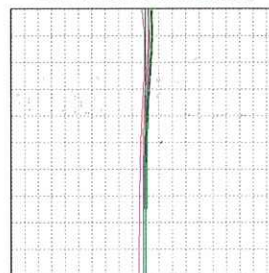
### AX103S Optical Tube Unit

With dual speed focuser and 50.8mm compression ring



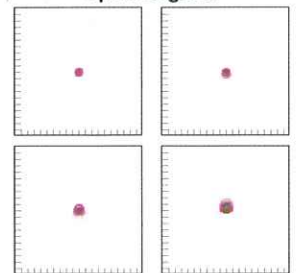
The chromatic aberration on the visible spectrum and spot diagrams shown below prove exceptional color correction and crisp sharp images in the AX103S. Star images are less than 20 microns on the edge of imaging field. Moreover, Vixen's "Precision Multi-Coating" applied to every surface of the lenses, assures extremely high light transmission.

Chromatic Aberration



Scale: 20µm

Spot-diagram



Scale: 10µm

The AX103S brings you superb images both in visual observation and in astrophotography.