SOFTWARE BISQUE

Paramount Taurus 400 Features and Specifications

$17,595–$23,995*

The Software Bisque Paramount Taurus™ model 400 carries 17-inch (0.4 m) telescopes weighing up to 150 pounds (70 kg). Assembled from five separate components, each weighing less than 100 pounds (45 kg), the Taurus 400 is the most easily deployable mount in its class. A two-person team can fully assemble the Taurus 400 in about one hour. The fork arms are precision machined from solid aluminum to provide exceptional stability and rigidity.

Telescope and pier sold separately; optional accessories are described below.
**Mount prices shown without and with optional extended temperature range on-axis absolute encoders.*

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Critical Features and Performance Specifications

Category	Feature/Specification	Details
Software 	TheSky™ Universal bundle includes interactive and easy-to-use observatory control software. Enjoy the benefits and productivity gains using one application to control your equipment.	TheSky™ Universal bundle includes TheSky™ Professional with TPoint™, Cameras+, Domes, Multi-OS+, and Weather modules. The Multi-OS+ module lets you switch among multiple operating systems, including macOS™, Windows™, Ubuntu™ and Linux (x86_64 and ARM64 architectures). All conveniently integrated with a single look and feel across all platforms. 
Pointing Accuracy	TPoint™ delivers accuracy of 30 arcseconds or less. That accuracy applies to the *entire sky*, and not a limited area.	In *theory*, the Paramount can point your telescope to under one arcsecond (the limiting precision of the control system's encoders). In *practice*, you should expect to achieve repeatable, quantifiable pointing accuracies at or below 30 arcseconds RMS by employing TPoint's calibration and telescope modeling tools.
Tracking Accuracy	Note: We have Paramount™ owners who use TPoint™ and ProTrack™ to acquire 20-minute unguided exposures with spectacular results… *without* absolute encoders.	During imaging sessions, ProTrack™ continuously updates the mount's position in *both axes* to correct system-wide tracking errors, including tube flexures, atmospheric refraction, polar misalignment, harmonic errors from mis-centered encoders and more. On-axis absolute encoders alone *cannot* detect or correct these types of errors. A properly applied mount model is necessary to achieve superior unguided performance, with or without on-axis encoders. When used in conjunction with a rigid payload and a fixed-mirror telescope, Paramounts controlled by TheSky and TPoint deliver *unmatched pointing and tracking accuracy*.
Backlash	Negligible	The spring-loaded worm-to-gear interface has virtually zero backlash in both the right ascension and declination axis.

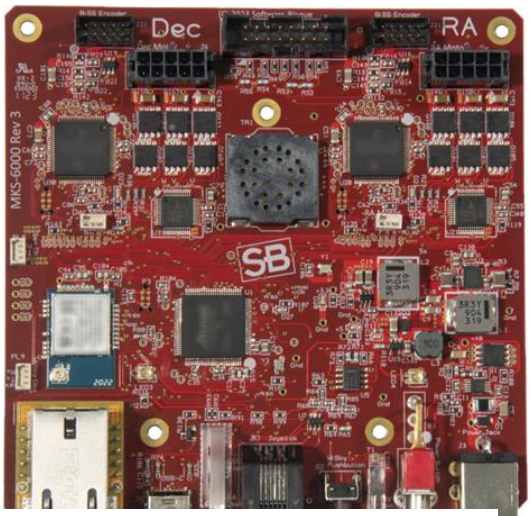
Critical Features and Performance Specifications

Category	Feature/Specification	Details
Nightly Startup	With optional on-axis absolute encoders ensure the Taurus is always ready to use. No nightly homing is required. With motor-based incremental encoders, home, calibrate and then start imaging.	The Paramount Taurus with TPoint and ProTrack can be restarted (powered off then on) with virtually identical pointing and tracking accuracy from session to session.
Tracking Performance and Periodic Error	With the optional on-axis absolute encoders:	Periodic error is automatically removed and is negligible.
	Without on-axis absolute encoders:	The mechanical peak-to-peak periodic error in hour angle is seven (7) arcseconds or less, *before periodic error correction*. After a one-time training, the typical periodic error is 1 arcsecond peak-to-peak or less. That means tracking errors from the Paramount worm's rotation is typically less than errors caused by local seeing. Correcting atmospheric refraction and other errors is what TPoint™ and ProTrack™ solve together and is what enables Paramounts without encoders to acquire pinpoint stars in relatively long, unguided photos.

Technical Specifications

Component	Specification	Details
Design	Equatorial fork	The equatorial fork design offers through-the-meridian tracking.
Composition		
Body and Gears	6061 and 6063 aluminum	All mechanical components are manufactured and assembled in Golden, Colorado, USA. A limited number of non-metallic components are used, such as access covers and plugs, Delrin™ washers on the altitude axis retaining knobs and the hand paddle's joystick mechanism.
Worm Gear	Brass	
Counterweights, Counterweight Shafts, and Fasteners	Stainless steel	
Telescope Control System	MKS 6000 dual axis motion control system	The MKS 6000 TCS features:

Technical Specifications

Component	Specification	Details
 *The MKS 6000 dual-axis TCS.*		• USB-C and Ethernet ports for high-speed communication with TheSky Professional. Or go wireless with the Wi-Fi hotspot. • LED and audible feedback for startup, steady-state, homing, and error status. • Integrated internal wiring for all mount electronics. • In the event the mount's payload encounters a fixed object, tracking and slews are immediately stopped. • Power supply: Max power output: 221W Max, 4.6A, +48V, Input: 100-240VAC ~50/60HZ • Field-upgradable firmware • Hand controller features an integrated mini-joystick controller and configurable five-position rate switch that allows single-handed mount control, an integrated bright red LED flashlight, lanyard, and 15-foot coiled hand paddle-to-mount cable. • For mounts *without* on-axis absolute encoders, programmable periodic error correction with periodic error curve fitting included with TheSky Professional.
Motors	Single stack NEMA 23 brushless DC servomotors.	• All moving parts are on bearing surfaces and provide reliable operation that is suitable for all-night, every-clear-night use. • Fast slew speeds and consistent torque at all slew rates. Though good balance is always recommended, the Paramount can slew or track several foot-pounds out of balance. You'll spend less time fiddling with the telescope and more time acquiring data. • Smooth rotation and quiet operation.
Work Area Illumination	Hand paddle LED	A built-in red LED on the hand paddle doubles as a flashlight that can be helpful during nightly setup tasks.
Included Items	When comparing, be sure to consider what comes standard.	Counterweight(s), counterweight shaft, Versa-Plate, 48V DC power supply unit, PC-to-mount USB cable and Ethernet cable, hand paddle, TheSky™ Universal bundle, ProTrack™, bubble level, and a standard hex wrench set.

Technical Specifications

Component	Specification	Details
Through-the-Mount Cabling	All the control system cabling is routed internally.	Built-in cable conduits allow additional custom cables to be routed through the mount and up the fork arms.
Documentation	Paramount Taurus 400 User Guide	The printed user guide is included and can also be downloadable in PDF format from bisque.com (log in required).

Physical Specifications

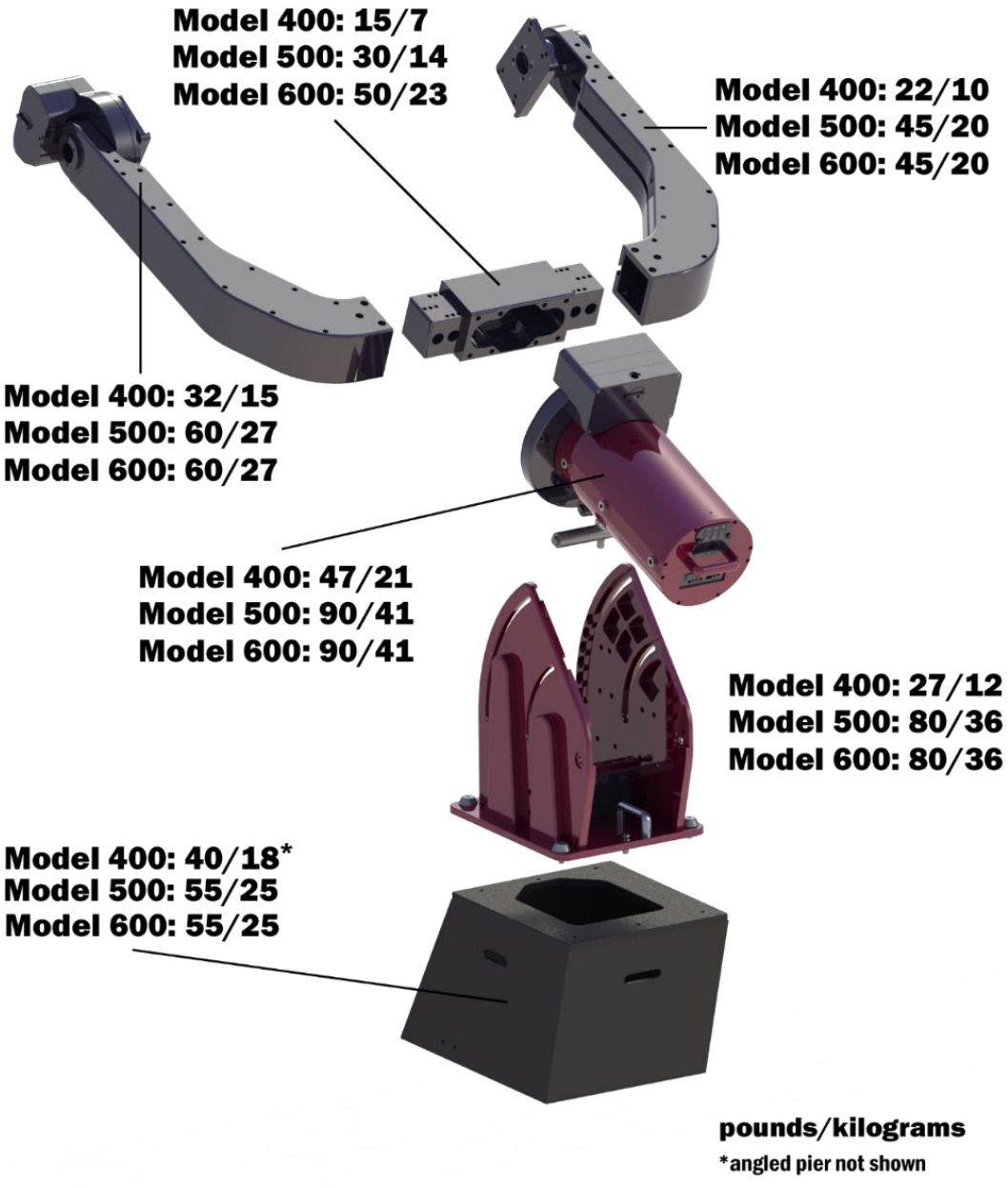
Equipment Capacity	150 lb. (70 kg) total instrument capacity.
Equatorial Wedge Polar Axis	Polar axis can be adjusted from 0° to 58° using a built-in ratcheting altitude mechanism. A custom mounting pedestal can be manufactured for higher latitudes.
Tracking Past Meridian	The equatorial fork design permits tracking objects up to six (6) hours beyond the meridian.
Gears	• Research-grade 11.5 in. (29 cm) 776-tooth aluminum right ascension gear. • 10 in. (25 cm) 420-tooth aluminum declination gear.
Optional On-Axis Absolute Encoders	Renishaw on-axis absolute encoders with 50 nanometer resolution tape provides better than 0.1 arcsecond resolution on each axis.
Construction	• 10 in. diameter right ascension tube. • 5 in. diameter right ascension shaft.
Bearings	• 8 in. (20 cm) with ¾ in. cross section in right ascension. • 8 in. (20 cm) declination axis.
Fork Arms	Machined 6061 aluminum with internal lightening. The fork can accommodate a single or multiple OTAs with an outer diameter of 14 in. (36 cm) up to 22 in. (55 cm).
Integrated Mount Base	Measures approximately 14 in. x 12 in. (36 cm x 30 cm) with 27 in. (43 cm) tall wedges.
Altitude Adjustment	3/4-inch threaded adjuster with thrust bearings for smooth operation.
Azimuth Adjustment	Mechanical, rotating push system with plus or minus 2.5° maximum adjustment.
Maximum Slew Speed	3.5 degrees per second in both axes. The factory default of 80% maximum slew rate works well with most payloads over a wide range of temperatures. Paramount mounts

Physical Specifications

	can slew at the maximum slew rate with a balanced payload that is approximately 50% or less of the total rated capacity, when the spring plunger pressure adjusted to factory standards at moderate ambient temperatures. As the mass of the payload increases, and/or the ambient temperature decreases, the mount may not be able to maintain maximum slew speeds. When near or above the stated capacity of the mount, or during cold temperature operation, slower maximum slew speeds and lower accelerations are required.
Weight	The total weight of the mount is approximately 142 lb. (65 kg). The mount breaks down into five separate components (not including the optional mounting base, see the *Components* diagram below for details) and can be assembled by a two-person team in about one hour.
Telescope Mounting	The built-in polar elevation ratcheting system makes attaching the telescope less cumbersome . When the forks are horizontal, adjusting the fork spacing, attaching the telescope, and balancing the payload can be accomplished before raising the polar axis. The mechanical ratcheting system in the wedge allows the entire payload to be incrementally stepped up in six-degree increments. Once the mount's polar axis is approximately aligned, TheSky's *Accurate Polar Alignment* feature, coupled with the mount's mechanical fine-tuning mechanism, assure the mount is precisely aligned to the refracted pole.

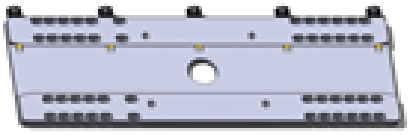
Fork arms can be placed horizontally to make attaching and balancing the telescope simpler.

Mount Components



Note: The Paramount Taurus Model 400 requires the Taurus 400 Pier shown below.

Optional Accessories

Accessory	Photo	Price (USD)
Taurus 400 Pier The Paramount Taurus 400 pier is angled to place the mount plus telescope's center of mass over the pier's mounting plate. Details about the pier can be found here: https://www.bisque.com/product/paramount-taurus-400-pier/ Universal Adapter Plate sold separately.		**$1,400**
Universal Adapter Plate The optional 6061 all aluminum adapter plate can be mounted to an existing surface and includes mounting holes to attach the Taurus base plate.		**$865**
OTA Mounting Rails Optional optical tube assembly mounting hardware is available for Officina Stellare™ and PlaneWave Instruments™ telescopes. Custom mounting hardware for other OTAs can be designed and manufactured by Software Bisque as needed.		**$950**
TheSky Fusion TheSky Fusion™ attaches to your telescope and lets you observe with TheSky Imaging and power all your equipment. Built-in Wi-Fi and Ethernet means you can image at the telescope, remotely from the comfort of your living room, or across the globe with any smartphone, tablet, desktop, or notebook computer.		**$1,895**

Made in the USA

SOFTWARE BISQUE

Superior imaging solutions for discriminating astronomers.

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