



S O F T W A R E B I S Q U E

Paramount™ Duo Direct-Drive Specifications



The Paramount Duo is shown in altazimuth and equatorial configurations. Telescopes, mounting hardware, and equatorial wedge sold separately.

When speed and accuracy matter, you'll love the Paramount Duo gimbal.

The multi-purpose Paramount™ Duo sets the standard for a flexible, and functional gimbal mount. Apart from the exceptional control system and precision engineering, what makes the Duo so extraordinary is its control software.

TPoint™, integrated with TheSky™, provides extreme pointing accuracy — it is used by the world's largest optical, infrared, and radio observatories. The Paramount Duo's telescope control system utilizes TPoint's Telescope Control System Pointing Kernel (TCSpk™) to provide unparalleled integrated pointing, tracking and instrument rotation accuracy, no matter what target you are imaging.

Model	Price (USD)	Maximum Instrument Capacity	Maximum Telescope Aperture
Paramount Duo	\$39,995	300 lb. (140 kg)	Two 20 in. (0.5 m) OTAs or four 12-in. (0.3 m) telescopes






The Paramount Duo is designed, manufactured, and assembled at our production facility in Golden, Colorado.

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Critical Features and Performance Specifications

Category	Feature/Specification	DUO
Software	<p>TheSky™ Universal controls the telescope, imaging equipment, and the dome or roll-off roof. Advanced satellite tracking capabilities are built in.</p> <div style="display: flex; justify-content: center; gap: 20px;"> <div style="text-align: center;">  <p>TheSky™ Universal</p> </div> <div style="text-align: center;">  <p>TheSky™ Satellites</p> </div> </div>	✓
Cross-Platform Support	<p>TheSky™ Universal is compatible with macOS, Windows, and Linux (ARM32, ARM64, and x86_64) operating systems. All platforms are included.</p> <div style="display: flex; justify-content: center; gap: 20px;">    </div>	✓
Mount Control	<p>The Paramount Duo can be controlled directly by scripting TheSky™ Professional, or with custom or third-party software based on Microsoft .NET®, C/C++ source code, Microsoft COM®, or MathWorks MATLAB®. Contact Software Bisque for details.</p>	✓
Maximum Slew Speeds	<p>30 degrees per second is normally a reasonable maximum limit with typical telescope loads. Configurable slew speeds up to 100 degrees per second where applicable.</p>	✓
Motor Telescope Control System	<p>A three-axis industrial direct drive motor controller (10-20A, 20 kHz control algorithm rate) and 120-220V AC 15A power supply unit is integrated within the mount base.</p>	✓
Mount to Computer Interface	<p>An Ethernet port is located on the mount base. TCP/IP protocol is used for communications with an external computer.</p>	✓
On-Axis Absolute Encoders	<ul style="list-style-type: none"> • All three axes employ 5.9 in. (15 cm) 26-bit Renishaw ring encoders with 0.02 arc second precision. • No periodic error. • No homing required. • Fewer TPoint calibration points are required to generate a telescope model that produces exceptional pointing and tracking performance. • The extended temperature range (ETR) read heads have a minimum operating temperature of -40° C. 	✓
Components	<p>220 lb. (100 kg) total mount weight can be disassembled into two components:</p> <ul style="list-style-type: none"> • Pier with electronics: 80 lb. (36 kg) • Paramount Duo head: 120 lb. (54 kg) <p><i>An optional wedge is available for equatorial use:</i></p> <ul style="list-style-type: none"> • Duo equatorial wedge: 36 lb. (16 kg) 	✓
Drive Axis Bearings	<div style="display: flex; justify-content: space-between;"> <div> <p>Primary bearing: 8 in. (20 cm)</p> <p>Secondary bearing: 5 in. (12.5 cm)</p> </div> </div>	

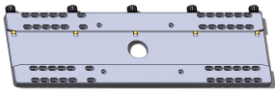
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Motor Torque Constant		8.7 Nm/Arms
Azimuth/HA Axis Travel	540° with spring-loaded “soft” stops at the limits of travel.	✓
Altitude/Declination Axis Travel	0 – 180°	✓
Slew Speed Range	Double-precision speed specification between 0 and the maximum slew rate using TPoint’s TCSpk™ pointing kernel.	✓
Cabling	Cables required for mount operation and the controller are enclosed within the Paramount Duo pier. An access conduit through the back of the pier accommodates custom instrument cables.	✓
Cable Covers	Removable cable covers provide easy access to internal cabling.	✓
Locking Pins	Each axis can be locked in place to prevent rotation while mounting the telescope and other instrumentation.	✓
Assembly	The two or three individual mount components can be fully assembled by a two-person team in an about hour.	✓
Motor Torque	The following specification is the torque that the controller and motor can produce in each axis.	65 Nm continuous/140 Nm peak
Duo Head Width	The distance between the two mounting plates.	10 in. (25.4 cm)
Instrument Rotator (optional)	The instrument rotator is the third axis on the direct-drive motor controller and plugs into the motor drive line. The TCSpk corrects field rotation.	✓
Telescope/OTA Attachment Plates (optional)	The optional dovetail system allows attaching telescopes to each side. See Optional Accessories below.	✓
Operating Temperatures	<p>The operating range for the mount’s control system is 0°– 40° C. A built-in heating unit automatically turns when the temperature drops below 5° C and turns off when the temperature exceeds 10° C.</p> <p>At higher temperatures, two cooling fans can be turned on inside the pier to cool the electronics.</p>	✓



The Paramount Duo with a 2 x 2 optical array.

Optional Accessories

Accessory	Photo	Description	Price
Paramount Duo Wedge		Converts the standard altazimuth Paramount Duo to an equatorial mount. Latitude adjustment from 20 degrees to 80 degrees. When used as an equatorial mount, the load is cantilevered and requires a larger area for operation.	\$3,995
Direct-Drive Instrument Rotator		The optional direct-drive instrument rotator incorporates large diameter internal bearings that produce a 3.5 in. (8.9 cm) clear aperture.	\$8,625
Universal Adapter Plate		The optional all aluminum adapter plate can be mounted to an existing surface and includes mounting holes to attach to the Paramount Duo's pier base plate.	\$865
Telescope Mounting Hardware		The optional dovetail kit includes mounting hardware to attach two telescopes to the drive plates. See the Paramount Taurus User Guide for more information.	\$950

Questions? Please email systems@bisque.com.



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