Critical Features and Performance Specifications

Category	Feature/Specification	DUO
Software	TheSky™ Universal controls the telescope, imaging equipment, and the dome or roll-off roof. Advanced satellite tracking capabilities are built in. 	✓
Cross-Platform Support	TheSky™ Universal is compatible with macOS, Windows, and Linux (ARM32, ARM64, and x86_64) operating systems. All platforms are included. 	✓
Mount Control	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.	✓
Maximum Slew Speeds	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.	✓
Motor Telescope Control System	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.	✓
Mount to Computer Interface	An Ethernet port is located on the mount base. TCP/IP protocol is used for communications with an external computer.	✓
On-Axis Absolute Encoders	• 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	220 lb. (100 kg) total mount weight can be disassembled into two components: • Pier with electronics: 80 lb. (36 kg) • Paramount Duo head: 120 lb. (54 kg) *An optional wedge is available for equatorial use:* • Duo equatorial wedge: 36 lb. (16 kg)	✓
Drive Axis Bearings	Primary bearing: 8 in. (20 cm) Secondary bearing: 5 in. (12.5 cm)	

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Critical Features and Performance Specifications

Category	Feature/Specification	DUO
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 tine. 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	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. At higher temperatures, two cooling fans can be turned on inside the pier to cool the electronics.	✓

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