



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

## Paramount Apollo™ 600 and 800 Specifications



*PlaneWave Instruments CDK20 telescope and telescope mounting hardware sold separately.*

### **When speed and accuracy matter, you'll love this altazimuth mount.**

Apart from exceptional engineering, what makes the Paramount Apollo™ so extraordinary is its control software. ProTPoint™, integrated with TheSky™, provides extreme pointing accuracy — it's relied upon by many of the world's largest optical, infrared, and radio observatories. Apollo's telescope control system also utilizes TPoint's Telescope Control System Pointing Kernel (TCSpk™) to provide unparalleled pointing and tracking performance.

Model	Price	Maximum Instrument Capacity	OTA Aperture
<b>Paramount Apollo™ 600</b>	\$59,500	400 pounds (180 kg)	Up to 24 inches (0.6 meter)
<b>Paramount Apollo™ 800</b>	\$79,500	800 pounds (360 kg)	Up to 32 inches (0.8 meter)

The Apollo is proudly manufactured and assembled at our production facility in Golden, Colorado.

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## Software and Hardware Specifications

Specification	Description	Apollo 600	Apollo 800
<b>Astronomy Software</b>	TheSky™ Space edition controls the telescope, imaging devices, and dome. Advanced satellite tracking capabilities are also included — all nicely integrated and sporting a consistent look and feel.	✓	✓
<b>Cross Platform Support</b>	TheSky™ Space edition is compatible with macOS, Windows, and Linux (ARM32, ARM64, and x86_64) operating systems. All platforms are included.	✓	✓
<b>Direct Software Control</b>	The Apollo can be directly controlled through its Ethernet connection (TCP/IP) by scripting TheSky™ Space edition, or using third-party tools based on Microsoft .NET®, C/C++ source code, Microsoft COM®, or MathWorks MATLAB®. Contact Software Bisque for details.	✓	✓
<b>Motor Controller</b>	A three-axis industrial direct drive motor controller (10-20A, 20 KHz control algorithm rate) and switching 120/220V AC 15A max. power supply unit is integrated within the mount base.	✓	✓
<b>Connection</b>	An Ethernet (TCP/IP communication protocol) port is located on the mount base.	✓	✓
<b>On-Axis Absolute Encoders</b>	5.9 in. (15 cm), 26-bit on-axis absolute encoders on azimuth, altitude, and rotator axis.	✓	✓
<b>Components</b>	320 lb. (145 kg) total weight disassembles into four components: <ul style="list-style-type: none"> <li>• Base: 115 lb. (52 kg)</li> <li>• Fork center: 50 lb. (14 kg)</li> <li>• Drive tine: 88 lb. (40 kg)</li> <li>• Support tine: 62 lb. (28 kg)</li> </ul>	✓	✓
<b>Drive Tine</b>	Primary bearing: Secondary bearing:	8-in. (20 cm) 5-in. (12.5 cm)	8-in. (20 cm) 5-in. (12.5 cm)
<b>Motor Torque Constant</b>		8.7 Nm/Arms	13.1 Nm/Arms
<b>Support Tine</b>	3.9-in. (12.5 cm) self-aligning bearing, multi-axis OTA stress relief mechanism.	✓	✓
<b>Azimuth Axis</b>	Primary bearing: Secondary bearing:	8 in. (20 cm) 5 in. (12.5 cm)	10 in. (25.4 cm) 6 in. (15 cm)

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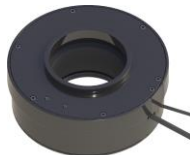

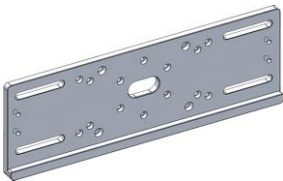
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Specification	Description	Apollo 600	Apollo 800
<b>Azimuth Axis Travel</b>	540° (“soft” stops at end of travel).	✓	✓
<b>Altitude Axis Travel</b>	0–90° (“soft” stops at end of travel).	✓	✓
<b>Internal Brake</b>	In the event of power loss, an integrated brake in the altitude axis stops rotation. The azimuth axis does <i>not</i> employ a brake but has spring-dampened hard limits to gently slow rotation.	✓	✓
<b>Maximum Slew Speeds</b>	Configurable. 30 degrees per second is a reasonable maximum limit with typical telescope loads.	✓	✓
<b>Slew Speed Range</b>	Double-precision speed specification, driven by TheSky Space™ edition and TPoint’s TCSpk™ pointing kernel.	✓	✓
<b>Cabling</b>	Cables required for mount operation and the controller are enclosed within the Apollo™ housing. A large access conduit through each fork accommodates custom instrument cables.	✓	✓
<b>Cable Covers</b>	Removable cable covers provide easy access to internal cabling.	✓	✓
<b>Locking Pins</b>	Altitude and azimuth axes can be locked in place to prevent rotation while mounting a telescope or instrumentation.	✓	✓
<b>Assembly</b>	The four components can be fully assembled by a two-person team in an about hour.	✓	✓
<b>Motor Torque</b>	The amount of continuous torque that is supplied to the altitude and azimuth axes.	65 Nm	103 Nm
<b>Fork Width</b>		24 in. (60 cm)*	24-28 in. (60-75 cm)*
<b>Fork Width Adjustments</b>	A high compression clamping mechanism on both tines and the fork base allows the fork’s width to be adjusted to match the width of the telescope or instrumentation.	✓	✓
<b>Fork Arm Length</b>		28 in. (70 cm)*	28-34 in. (75-86 cm)*
<b>Instrument Rotator (optional)</b>	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.	✓	✓

Specification	Description	Apollo 600	Apollo 800
<b>Telescope/OTA Attachment (optional)</b>	Intelligent Scope Rail System permits “drop-in” telescope mounting. See Optional Accessories below.	✓	✓
<b>Operating Temperatures</b>	The operating range for the mount control system is 0–40° C. A built-in heater turns on when the temperature is 5° C and off when the temperature exceeds 10° C. Two cooling fans can be turned on when operating at higher temperatures.	✓	✓

\*Custom height and width fork arms for non-standard payloads are available for an additional fee. Call for pricing and availability.

## Optional Accessories

Accessory	Photo	Description	Price
<b>Direct-Drive Instrument Rotator</b>		The optional direct-drive instrument rotator incorporates large diameter internal bearings that produce a 3.5 in. (8.9 cm) clear aperture.	\$8,000
<b>Universal Adapter Plate</b>		This optional heavy-duty aluminum mounting plate that can be attached to an existing surface to permanently mount the Apollo’s base.	\$750
<b>Telescope Mounting Hardware</b>		The optional Scope Rail System includes mounting hardware to attach the OTA to the fork. Short, medium, and long OTA-side mounting plates are available for different size telescopes. See the Apollo User Guide for details about this accessory.	Based on OTA and mounting plate length

If the standard Apollo does not meet your needs, please email [systems@bisque.com](mailto:systems@bisque.com) so that our staff can help design a system to satisfy your project’s requirements.



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