

10Micron GM1000 HPS EP (Enhanced Performance)

MORE CAPACITY, SAME CLASS, SAME PRICE



The GM1000 HPS EP (Enhanced Performance) represents the next generation of the highly successful GM1000 HPS mount. This is not a replacement but an evolution of the original design. Through targeted structural enhancements, the mount now features a 20% greater payload capacity, supporting up to 30 kg (66 lb.), while maintaining the same acclaimed transportability and price point. This makes the GM1000 HPS EP the premier choice for demanding astronomers who require maximum stability in a portable mount class.

The name 10Micron is synonymous with uncompromising precision and reliability in the astronomical community. The HPS series, standing for High Precision and Speed, is the cornerstone of this reputation.

The Foundation: A Legacy of Success

The original GM1000 HPS is a benchmark in its segment, celebrated for its perfect balance of capacity, portability, and accuracy. It built its legacy on several key pillars

- **Absolute Precision:** High-precision absolute encoders on both axes deliver flawless pointing and tracking, often eliminating the need for autoguiding.
- **Exceptional Payload-to-Weight Ratio:** It provides an optimal payload capacity within a lightweight and easily transportable body.
- **Robustness and Reliability:** Engineered to perform consistently under any conditions, night after night.
- **Advanced Software:** Features a powerful and intuitive control system with professional-grade capabilities for all users.
- **Remote-Ready Operation:** Designed for dependable remote use and backed by a comprehensive global support network.

The Evolution: Key Innovations of the GM1000 HPS EP

The GM1000 HPS EP is the culmination of a dedicated R&D process to enhance the mount's core structure and technology. Furthermore, years of field-testing by users worldwide, who often pushed the mount near its limits with excellent results, provided us with invaluable data and the confidence to take the next step. Every improvement delivers a tangible benefit to the astrophotographer.

- **Increased Payload Capacity to 30 kg (66 lb.):** Allows for the use of heavier and more complex optical setups—such as larger telescopes and heavy camera systems—while preserving maximum stability.
- **Reinforced axes:** Both RA and DEC axes have been improved with a new design and an increased thickness. RA axis diameter has also been increased in diameter.
The result is an exponential increase in structural rigidity that dramatically reduces flexure and vibrations.
- **New, Larger Bearings:** Corresponding with the new axis, larger and reinforced bearings provide

smoother movements and superior management of the increased load, ensuring the longevity of the mechanics.

- **Redesigned Housings and Worm Gear Supports:** The mechanical housings have been optimized to integrate more robust worm gear supports, minimizing flexure in the drive system to ensure flawless tracking.
- **Enhanced Manufacturing Precision:** The use of new CNC machinery and 3D coordinate measuring machines (CMM) allows for tighter mechanical tolerances and guarantees consistent quality across every unit.
- **New V3 Control Box:** Modernized electronics and industrial-grade, EU-made connectors deliver superior performance, faster command response, and robust, long-lasting connections.
- **Selective Sourcing of Materials:** A rigorous selection process for all metal alloys and electronic components ensures top-tier performance and reliability in every detail.
- **Enhanced Connectivity and Web Interface:** Advanced connectivity options, including a sophisticated web interface, provide reliable remote usability and allow for comprehensive monitoring and control without physical interaction.
- **Optimized for Remote Operation:** The mount's inherent reliability and robust design, combined with its advanced connectivity, enable seamless and dependable remote operation. It is backed by a worldwide sales and technical support network.

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Technical specifications

Item #	10M1030
Type	German Equatorial Mount
Weight (mount)	19.5 kg – 43 lb. without accessories
Instrument payload capacity	~ 30 kg – 66 lb.
Latitude range	0° – 82° (90° optional)
Azimuth fine adjustment range	+/- 7.5°
Counterweight shaft	30 mm diameter, stainless steel, weight 1.7 kg – 3.7 lb. For heavy payload (approx. 25 to 30kg an optional longer counterweight bar could be necessary)
Axes	32 mm (RA) /30 mm (DEC) diameter, alloy steel, NEW IMPROVED DESIGN
Bearings	Pre-loaded tapered roller bearings / Roller thrust bearings
Worm wheels	250 teeth, 125 mm diameter, B14 bronze
Worm gears diameter	20mm, alloy steel, grinded and lapped
Transmission system	Backlash-free system with timing belt and automatic backlash recovery
Motors	2 axes servo brushless
Power supply	24 V DC
Power consumption	~ 0,5 A while tracking ~ 3 A at maximum speed ~ 4 A peak
Go-to speed	Adjustable from 2°/s to 15°/s
Pointing accuracy	< 20" with internal multiple-stars software mapping
Average tracking accuracy	< +/- 1" typical for 15 minutes (< 0.7" RMS) with multiple-stars software mapping and compensation of flexure and polar alignment errors
Security stop	+/- 30° past meridian in R.A. (software) +/- 45° past meridian in R.A. (mechanical)
Electronic hardware	• Built in absolute encoders on both RA & Dec axes, featuring <0.1 arcsec readout error, fully encapsulated and factory calibrated • V3 control box with onboard-intelligence and V3 firmware, standalone system (no PC required). • Rugged keypad with metal body and reliable industrial micro switches; large graphic display, with up to five text lines and status icon, heated for low temperature operation, dimmable display and keyboard with LED backlit keys
Communication ports	• Ethernet port, • RS-232 port; • GPS port with PPS signal; • Autoguide ST-4 protocol port • AUX port (remote power on/off)
Database	• Stars: by name, Bayer designation, Flamsteed designation, Bright Star Catalogue, SAO, HIP, HD, PPM, ADS, GCVS. Deep-sky: M, NGC, IC, PGC, UGC limited up to mV = 16. • Solar system: Sun, Moon, planets, asteroids, comets, artificial satellites. • Equatorial and altazimuth coordinates • User defined objects
Firmware features	• User defined parking position • 2-stars and 3-stars alignment function • Up to 100 alignment stars for modeling, correction of polar alignment and orthogonality errors • Estimate of average pointing error • Storage of multiple pointing models • Sidereal, solar and lunar tracking speed adjustable on both axes • Declination-based autoguide speed correction • Adjustable horizon height limit •

	Pointing and tracking past meridian management • Assisted balance adjustment • Manual or GPS based time and coordinates setting • Dome control via RS-232 (BAADER domes) • Configurable atmospheric refraction • Comets and asteroids filter • Multi-language interface • Remote assistance via Internet connection.
PC control	• Remote control via RS-232 or Ethernet • Proprietary ASCOM driver or Meade compatible protocol • Update of firmware and orbital elements of comets, asteroids and artificial satellites via RS-232 or Ethernet • Virtual control panel via RS-232 or Ethernet • Wi-Fi communication to control the mount via Tablet and Smartphone.
Web interface	• Direct access to the user manuals and command protocols • Download of TLE data as well as comet and asteroid data • Automatic firmware check and easy updates • Virtual hand controller with all the functions of the physical keypad • Compatible with any browser and any device (PCs, laptops, tablets, and smartphones) as well as all operating systems