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10 MICRON astro•technology
by COMEC-TECHNOLOGY

NEW AZ HPS - ALTAZIMUTHAL MOUNTS

TRUE PRECISION - FOR YOUR ACCURATE RESEARCH

BUILT-IN ABSOLUTE ENCODERS

AZ1000 HPS

AZ2000 HPS

AZ3000 HPS

AZ4000 HPS

The AZ HPS series are very versatile research mounts, in altazimuthal configuration, perfect for scientific activities such as LEO satellite tracking, space debris monitoring, laser communication, high resolution spectroscopy, photometric and astrometric measurements. They are also suitable for didactic applications, popular science or some amateur astronomy activities like planetary imaging or visual observations.The standard version allows to assembly the optics to only a side of the mount and it's supplied with a counterweight bar. An option is available for a double telescope configuration, in order to have two (or multiple) optical systems on the same mount. Using the same HPS technology, these new mounts derive from the GM HPS series, well known and appreciated all around the world by both professionals and amateurs.

MAIN FEATURES

- Premium materials and processing for high quality and durability
- No casting parts, all pieces are CNC milled
- HPS Technology with absolute encoders and high speed motors
- Altazimuthal configuration with optional double optics attachment
- Internal wiring - no external cables
- Traditional, high precision worm-gear system, simple and reliable
- High payload capacity
- Professional graphic keypad: standalone operation, no PC required
- Extremely accurate star modeling up to 100 stars
- Modeling software "Model Maker" available for automatic alignment
- Multiple models recordable for different optics setups
- Automatic detection and compensation for refraction and flexures
- Manual, automatic or GPS based time
- Leap seconds support for UT1-UTC correction
- Wide accessories selection
- Fully remote control - Remote diagnostic assistance
- De-Rotator compatibility via ASCOM...and much more!

AZ4000 HPS DDT with 17" and 24" optics

AZ3000 HPS standard version and Double telescope version

DOUBLE TELESCOPE OPTION

This option allows to assemble a dual or multiple optics configuration; different sizes of dovetail plate are availables in order to match with several brand of optics. Not availalbe for the AZ 1000 HPS mount.

PROFESSIONAL GRAPHIC KEYPAD INCLUDED:

- Stand alone control unit - no PC required - includes all necessary functions
- Rugged keypad with metal body and relible 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

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Authorized 10Micron Dealer:

Made in Italy

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SPECIFICATIONS	AZ1000 *HPS*	AZ2000 *HPS*	AZ3000 *HPS*	AZ4000 *HPS*
Mount Type	Altazimuth German Mount			
Weight (default config)	19.5 kg – *43 lbs*	33 kg - *73 lbs*	65 kg – *143 lbs*	125 kg - *276 lbs*
Instrument payload capacity	25 Kg (*55 lbs)*	50 kg (*110 lbs*) for standard single telescope configuration 50 + 40 kg (*110 +90 lbs*) for optional dual telescope configuration	100 kg (*220 lbs*) for standard single telescope configuration 100 + 65 kg (*220 +143 lbs*) for optional dual telescope configuration	150 kg (*330 lbs*) for standard single telescope configuration 150 + 100 kg (*330 + 220 lbs*) for optional dual telescope configuration
Azimuth adjustment range (for initial orientation)	+/- 10°			
Counterweight shaft	30 mm diameter, stainless steel	40 mm diameter, stainless steel	50 mm diameter, stainless steel	60 mm diameter, stainless steel
Axes	30mm diameter, alloy steel	50mm diameter, alloy steel	80mm/50mm diameter alloy steel	85mm/80mm diameter alloy steel
Bearings	Pre-loaded tapered roller bearing			
Worm wheels	250 teeth, 125 mm diam., B14 bronze	215 teeth, 172 mm diam., B14 bronze	315 teeth, 244 mm diam./ 250 teeth, 192 mm diam., B14 bronze	430 teeth, 330 mm diam. / 315 teeth, 244 mm diam., B14 bronze
Worm gears	diameter 20mm, tempered alloy steel, grinded and lapped	diameter 24mm, tempered alloy steel, grinded and lapped	diameter 32/ 24mm, tempered alloy steel, grinded and lapped	diameter 32mm, tempered alloy steel, grinded and lapped
Transmission system	Backlash-free system with timing belt and automatic backlash recovery – traditional worm gear mechanics			
Motors	2 axes servo brushless			
Power supply	24 V DC			
Power consumption	~ 0,5 A at sidereal speed ~ 3 A at maximum speed ~ 4 A peak	~ 0,7 A at sidereal speed ~ 3 A at maximum speed ~ 5 A peak	~ 1A at sidereal speed ~ 3.5 A at maximum speed ~ 4 A peak	~ 1,5 A at sidereal speed ~ 5 A at maximum speed ~ 6 A peak
Go-To speed	Adjustable 2°/s to 15°/s.	Adjustable 2°/s to 20°/s.	Adjustable 2°/s to 12°/s	Adjustable 2°/s to 8°/s
Temperature operational range	-15° C to +35° C	Standard: -15° C to +35° C Low temperature option: - 35° C to + 35° C		
Pointing accuracy (typical)	< 20" with internal 25-stars software mapping (max 100 stars) Modeling software "Model Maker" available for automatic alignment			
Average tracking accuracy	< +/– 1" typical for 15 minutes / ~ 0.6" RMS with internal 25 star model* (real sky observation) < 0.1" encoder readout error - *see "Firmware features" below for all details about our star modeling			
Safety stop	+/– 150° in AZ (software) +/– 155° in AZ (mechanical) +/– 95° in Alt (software) +/– 100° in Alt (mechanical)			
Integrated 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, quick slewing positions recalls for frequent focusing or repetitive operations.			
Firmware features	User defined mount parking positions, 2stars and 3stars 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, assisted electronic balance adjustment, automatic (ClockSync proprietary software) manual or GPS time & site coordinatess synchronization, leap seconds support and full accounting for the UT1-UTC timescale, configurable atmospheric refraction, direct Baader dome control via RS-232, network settings, comets and asteroids filter, multi-language interface. Remote Assist via Internet connection. We can connect to your mount from our facility for diagnostic and servicing			
Keypad control	Rugged keypad with metal housing and reliable professional micro switches. Large graphic display - heathed for operation under lowest temperature, dimmable display & keyboard with LED back-lit keys, five information menu lines for coordinates, object information and symbols showing mount status and active external connections and accessories. All the functionality of the mount is available throught the keypad without requiring an external PC			
PC control	Remote control via RS-232, Ethernet, usage of any client software supporting the ASCOM standard through proprietary ASCOM driver, or through the LX200 compatible protocol, update of firmware and orbital elements of comets, asteroids and artificial satellites via RS-232 or Ethernet, PC Virtual KeyPad control panel via RS-232 or 10/100/1000 Ethernet, replicating the functionality of the physical keypad. Furhtermore a GPS and ST4 autoguide ports are available. Integrated WiFi for connection to smartphones or tablets and any wireless network. Proprietary TLE manager application for LEO satellites tracking. Mount manager software including advanced user interface. New professional WEB interface coming soon...			

August 2019