

DDS
Direct Drive System

ROBOTIC MOUNTS



AZ5000 DDS



AZ6000 DDS



AZ8000 DDS

HIGHLIGHTS

- Direct Drive System with torque motors specially designed for astronomical application
- On-axis high resolution, industrial grade absolute encoders
- High precision, high quality large diameter bearings from precision machinery industry
- Very stiff and compact fork to minimize vibrations and higher the “natural system frequencies”
- Integrated, industrial grade electronics and onboard microserver with internal sky model capability
- Integrated interface for focuser/derotator with direct control
- Minimum base height for improved stability and use with small domes
- Nasmyth focus with 100mm, 110mm or 160 mm bores
- Very fast pointing speed up to 40°/sec. and accurate positioning in a few arc/seconds
- Very accurate tracking for long exposure unguided imaging, optimized for LEO satellite tracking
- Two Line Elements tracking data interface manager available

20 YEARS OF EXPERIENCE

10Micron mounts feature an onboard microserver with a Linux operating system and ethernet connectivity. They have been chosen by astronomical observatories, universities and companies around the world for their reliability and precision. We think this is the best proof of quality, innovation, technology and affordability. Satellites, asteroids and comets tracking are directly implemented in the firmware for robotic operation.

One of 10Micron latest projects is the AZ DDS (Direct Drive System), a new generation of professional robotic mounts, in altazimuthal fork configuration with software integrated focuser/derotator.

Thanks to a long experience in robotic astronomical mounts, 10Micron is proud to offer this solution specially developed for professional and research applications such as astronomical and satellite fields, which need a really demanding grade of quality and affordability.

The AZ DDS mounts integrate all the latest technologies and technical acquirements in mechanical, electrical, electronics, software and design fields: any single feature and component has been accurately studied in order to reach the highest level of efficiency that has always characterized 10Micron products; likewise 10Micron has integrated many new features in order to ensure the safety of both the instrument and the operator

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MADE IN ITALY



MECH. SPECIFICATIONS

AZ5000 DDS

AZ6000 DDS

AZ8000 DDS

Mount type	Alt-azimuth direct drive mount with on-axis high resolution absolute encoders		
Weight (mount without telescope and accessories)	300 kg	360 kg	950 kg
Telescope payload capacity	up to 250 kg, 650 mm (26") diameter	up to 300 kg, 800 mm (31") diameter	up to 700 kg, 1000 mm (40") diameter
Axes bearing	Premium quality large diameter, high precision bearings		
Motors	Professional grade direct drive motors; no worm gears or transmission systems, zero backlash		
Encoders	High Resolutions absolute encoders, industrial grade		
Power supply	48 V		
Power consumption	5 A peak	7 A peak	20 A peak
Goto speed	40°/s	30°/s	20°/s
Pointing accuracy	<10" RMS 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-stars model (real sky obs.) < 0.01" encoder readout error		
Nasmyth holes diameters	1 standard on the motor side – 100mm diameter	2 standard on both sides – 110mm diameter	2 standard on both sides – 160mm diameter
Nasmyth focus payload capacity	30 kg	35 kg	50 kg
Safety features	Mechanical stops in both axis, Anti-wrap logic, On board and remotable Emergency stop button with safety relay, Aural warning system, Unbalance/collision protection system		
Security stops	Mechanical Off-Travel stops at AZ +/- 300° (~2 turns) and Alt: 100° (-5° / +95°)		
Security brakes	Electromechanical brake & stops for unbalance safety in altitude		
Dimensions (only mount with standard fork)	1350 x 550 x 1350 mm	1660 x 550 x 1520 mm	1900 x 1000 x 1500 mm
Focuser/DeRotator dedicated (optional)	GO1 by 10Micron. 10Micron specific, software integrated control. 25kg payload capacity, internal temperature probe		GO2 by 10Micron. 10Micron specific, software integrated control interface. 50kg payload capacity, internal temperature probe

FIRMWARE SPECIFICATIONS

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 coordinates 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 - heated for operation under lowest temperature, dimmable display & keyboard with LED backlit 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 through 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 Ethernet, replicating the functionality of the physical keypad. Furthermore a GPS and ST4 autoguide ports are available. Proprietary TLE manager application for LEO satellites tracking. Mount manager software including advanced user interface. New professional WEB interface coming soon...