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ASTRO HP cam

Jena-Optronik's **ASTRO HP cam** is a multi-purpose camera combining the radiation hard Faintstar2 detector with precision optics to provide the highest imaging quality in a compact package.

With this compact and lightweight design, we are responding to customer requirements in an agile market environment that focuses on small and cost-effective high-performance satellites.

This compact and lightweight space camera for the visible range was designed based on Jena-Optronik's heritage from the successful ASTROhead series, which was used for example on the Northrop Grumman MEV Mission for autonomous docking and mission-extension of satellites in GEO orbit and the ESA HERA mission, a post-impact survey of the asteroid Dimorphos.
The ultra-fast F/1.0 baseline optics provide outstanding SSA capabilities for early detection of the dimmest objects.

Features

- Lifetime on orbit >15 years
- High sensitivity makes it well-suited for SSA applications
- F/1.0 precision optics with 29 mm focal length, 20° FoV baseline;
  heritage lens designs could be easily adapted as per customer's requirements:
  106 mm Ultra NFOV (HERA) F4.2 with 5.5° FoV
  8.5 mm WFoV (MEV) F/8 with 68° FoV

Highlights

- Latch-up free electronics design that guarantees highest level of availability
- State-of-the-Art space qualified coatings
- Exclusively radiation hard-by-design EEE-Parts
- Superior reliability with extraordinary low failure rate
- The 29 mm lens supports star tracker applications with outstanding accuracy

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ASTRO HP cam Performance

	Focal length 8.5 mm	Focal length 29 mm	Focal length 106 mm
Optics	focal length 8.5 mm, F/8	Focal length 29 mm, F/1.0	Focal length 30.5 mm, F/4.2
Field of View	68 deg (circular)	20 deg (circular)	5.5° x 5.5° (rectangular)
Sun Exclusion Angle	42.5 deg	26 deg	85 deg
Optimum Object Distance	0 ... 100 m	>10 m ... ∞	>10 m ... ∞
Detector / Resolution	Faintstar2 - 1024 x 1024 pixels		
Integration time	1 ms ... 25 sec (dynamic frame-to-frame configuration possible)		
Reliability	80 FIT (MIL-HDBK-217 @ 30°C baseplate)		
Environment			
Operating Temperature	-35°C to +50°C		
Storage Temperature	-40°C to +70°C		
Random Vibration / Shock	33g / 2000g all axis		
Radiation	Up to 15 years in LEO and GEO orbit without additional shielding		
Physical			
Dimensions (l x w x h)	80 mm x 80 mm x 143 mm (excluding mirror cube and bonding stud)	80 mm x 80mm x 231 mm (excluding mirror cube and bonding stud)	80 mm x 80mm x 270 mm (excluding mirror cube and bonding stud)
Mass	~ 850 g	≤ 960 g	~ 1250 g
Interfaces			
Data	80 MHz Space Wire		
Power Supply	5V, ≤ 1.2 W		

EN 9100 certified AIRCERT Certification of Management Systems

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