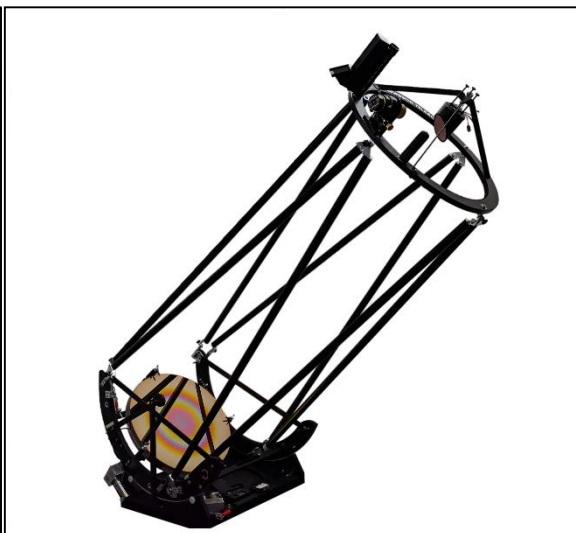
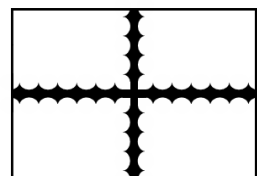


Preliminary Datasheet

Laser Downlink plus Star Tracker



Data Rate	1 Gbits / sec @ 1000 km range 250 Mbits/sec @ 2000 km range	Downlink only No uplink channel
Star Tracker Performance	5 arcsecond cross-boresight (RMS) 55 arcsecond around boresight (RMS)	
Acquisition and Tracking Envelope	Internal fine-pointing to ground station based on built-in star tracker Tolerates $\pm 2^\circ$ spacecraft pointing error	
Transmitter	1 W @ 785 nm, semiconductor laser and amplifier Thermoelectric temperature control	
Ground Receiver	0.55 m diameter Newtonian telescope with silicon APD Entirely passive, with no laser emissions from the ground	
Interfaces	LVDS In for transmit data RS485 for control and telemetry of device, and star tracker output	
Data Formatting	Compatible data formatter and solid state memory unit available	
Power	+28 V nominal, <10 W in downlink, <1 W as star tracker only	
Mass	335 g	
Volume	79 mm x 68 mm x 68 mm including baffle	
Environment	Thermal: -20°C to $+40^\circ\text{C}$ (operating), -40°C to $+50^\circ\text{C}$ (survival), Vibration: $> 29.6 g_{\text{RMS}}$ vibration Shock: 2000 G Lifetime: 13 years LEO (800 km) or 9 years GEO	
Heritage	21 star trackers on-orbit. Laser downlink under development.	



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