

FEATURES & DESCRIPTION

- Integrated fine pointing within 2° cone
- Wide 2° angle tracking sensor for fast signal acquisition
- SDA compliant physical layer and PAT sequence
- Mechanically isolated EDFA assembly for flexible integration and heatsinking
- 2.5 Gbps nominal transmit data rate (hardware support for up to 10 Gbps)
- 156 Mbps nominal receive data rate
- 30 W maximum power consumption
- In-orbit calibration of optical misalignments
- Compatible with Astrolight's transportable optical ground station OGS-2.5

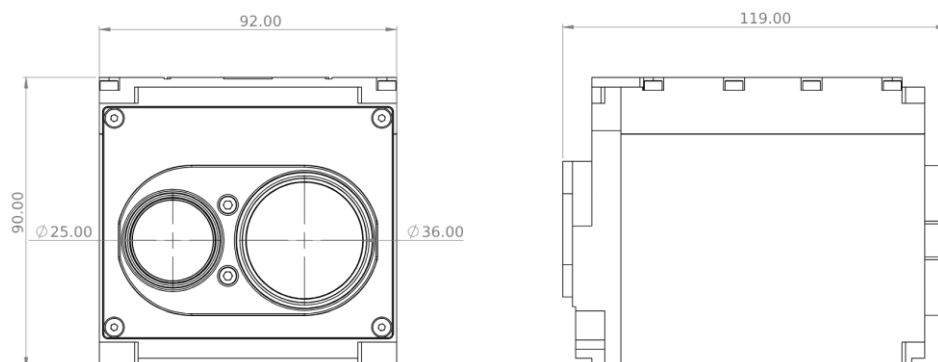
ATLAS-2 is Astrolight's second generation low SWaP laser communication terminal designed for space-to-ground and space-to-space links. ATLAS-2 is optimized for transmission of large volumes of payload data and low data rate return links, ideal for Earth observation data relay and distribution. The modular design enables integration flexibility and data rate scaling with up to 2W of optical power provided by Astrolight's proprietary Erbium-Doped Fiber Amplifier (EDFA).

ATLAS-2 can self-calibrate in-orbit, providing actionable data that increases overall link reliability. The terminal is optimized for operation with Astrolight's OGS-2.5 optical ground station.

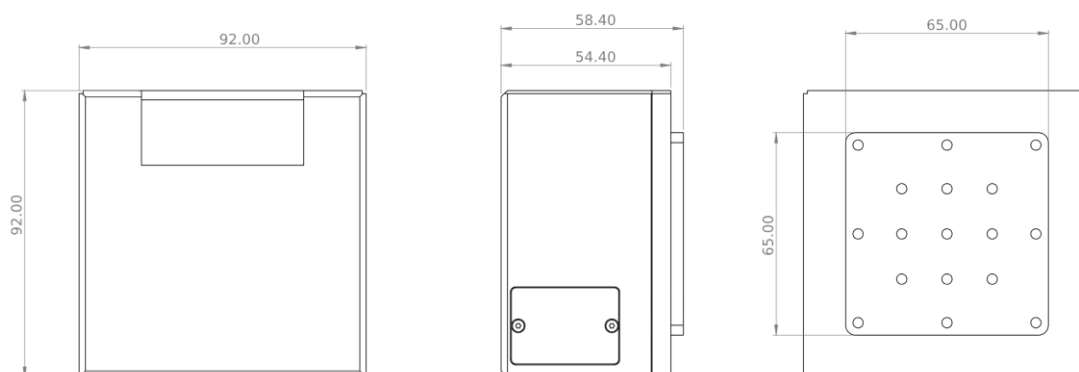
APPLICATIONS

- Data relay via inter-satellite links
- Large data volume space-to-ground downlinks





Dimensions (mm) of ATLAS-2 Free Space Optics (FSO) enclosure



Dimensions (mm) of ATLAS-2 Erbium-Doped Fiber Amplifier (EDFA) unit, rated for 1W optical power

Optical parameters

Tx/Rx wavelength	1553.3 / 1536.6
Tx optical power	< 2 W
Tx/Rx clear aperture	32.4 mm
Tracking clear aperture	21 mm

Pointing Specification

Fine pointing precision	< 15 μ rad
Transmit divergence	$\pm 63 \mu$ rad at $1/e^2$
Tracking FoV	2°
Fine pointing range	2°

Data Transfer Specification

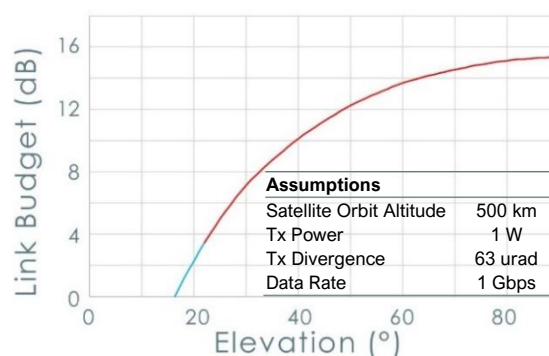
Nominal Tx data rate	2.5 Gbps
Nominal Rx data rate	156 Mbps
Required irradiance at Rx	25 μ W/m ²
Maximum ISL range*	2500 km

* when communicating with SDA compatible terminal

Thermal Specification

Power dissipation EDFA unit	20 W**
Power dissipation FSO unit	10 W
Operating temp. range	-30° to 60° C
Survival temp. range	-45° to 80° C

**Rated for 1W EDFA version



Example link margin at different elevations using Astrolight's ATLAS-2 satellite terminal and OGS-2.5. Viable data transmission is marked in red.

Satellite Bus Requirements

Platform pointing	0.5°, 2 σ
Telemetry interface	RS422 / CAN
Power Consumption	Idle 1W / Nominal 10W / Peak up to 30W*
Power supply	5V & 12V
Mass	2.3 kg
Volume	1.7 U