

### ENERLINKSIII GROUND MODEM TRANSCEIVER



### RADIO INTERFACE MODULE



The EnerLinksIII™ Autotracking Antenna System (ETAS) provides a complete, high performance ground station solution for video and ISR data links using the EnerLinksIII Ground Modem Transceiver (GMT).

An antenna with a parabolic reflector design is an ideal choice for the ground station antenna, since its gain varies in a way that exactly offsets the propagation loss variation, allowing the link margin to be constant with frequency.

When using the autotracking antenna system, the EnerLinksIII calculated LOS range at 11 Mbps is 75 nmi with 10 dB of link margin for multipath fading. In practice, greater range is usually achieved. Similarly, performance well beyond 100 nmi is achievable at 5 Mbps.

The ETAS also includes an omni-directional antenna for operation at close range where the angular velocity of the aircraft may exceed the ability of the tracking gimbal to follow it. The diversity combining capability of EnerLinksIII allows the downlink to switch seamlessly and automatically between the two antennas. The uplink is likewise switched to the appropriate antenna using an RF switch.

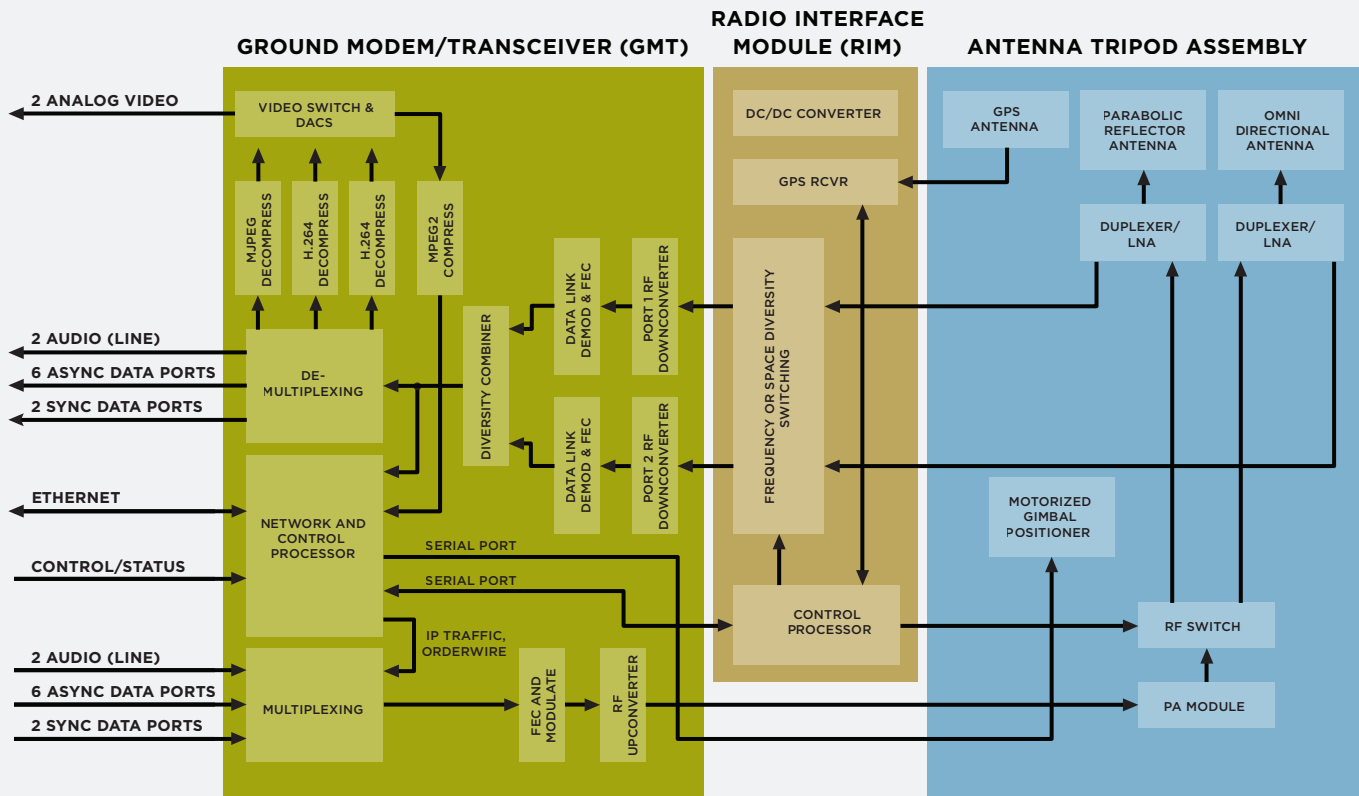
Tracking and acquisition is accomplished using a combination of GPS position information (when available) and signal strength. The ETAS includes an integrated GPS receiver and flux gate compass to allow it to determine its location and orientation.

### Autotracking Antenna At-A-Glance

- » Rugged, portable autotracking antenna system enhances EnerLinksIII range performance
- » 24" parabolic reflector provides gains from 18 dBi at 1.7 GHz to 28 dBi at 5.5 GHz
- » Narrow beamwidth improves theater wide system spectrum efficiency
- » Omni antenna for operation at close range
- » Tracking algorithm implemented within EnerLinksIII Ground Modem Transceiver – no additional tracking unit box needed.
- » Fully integrated with all RF components

Using the Autotracking Antenna System, the EnerLinksIII system will provide downlink LOS range of at least 75 nmi at 11 Mbps, and over 100 nmi range at 5 Mbps at any frequency band in which it can operate.

# Autotracking Antenna System Specifications



ETAS incorporates all the RF components that are sensitive to cable loss including duplexers, LNAs and Power Amplifiers. These are packaged directly behind the parabolic reflector using minimum length cable runs. Power for the LNAs and PA is conducted on the RF cables, minimizing the number of cables required.

The tracking algorithms are implemented in software residing in the GMT. The GMT interfaces to the Antenna Tripod Assembly through a Radio Interface Module that provides power conditioning for the gimbal power and control for the GPS receiver and various RF switches. The Radio Interface Module also allows switching to enable use of the GMT in a frequency diversity mode if required.

## ANTENNA

**Parabolic Diameter:** 24"

**Gain at 1700 MHz (approx):** 18 dBi  
3 dB beamwidth at 1700 MHz: 20°

**Gain at 5500 MHz (approx):** 28 dBi  
3 dB beamwidth at 5500 MHz: 6°

## OMNI ANTENNA

**1700 – 2500 MHz Gain:** 3dBic;  
16" L x 1.58" Dia.

**4400 – 5850 MHz: Gain:** 4dBic;  
4.2" L x 2.0" Dia.

## RADIO INTERFACE MODULE

**Size:** 3.2" x 7.9" x 10.5"

**Weight:** 6.5 lbs.

## ANTENNA TRIPOD ASSEMBLY

**Size:** 6 ft < height < 7.5 ft; triangular  
foot print 45" /side

**Weight:** 68 lb.

## ENVIRONMENTAL

**Operating temperature range:** -0° to +60°C

**Non-operating temperature range:** -40° to +85°C

**Humidity:** to 95% non-condensing

**Vibration:** consistent with sec 514.4,  
category 20 of MIL-STD-810F Procedure 1,  
Figure 514.5 (wheeled vehicles)

## CONTACT

1935 CORDELL COURT  
EL CAJON, CA 92020-0911

WEB WWW.VIASAT.COM/ISR-DATA-LINKS  
TEL 619.438.6000  
EMAIL ENERLINKS@VIASAT.COM