



# High-Speed Downlink Solutions Ka/S Terminal

## Solve the Downlink Bottleneck

Kepler's Ka/S Terminal features a software-defined radio and antenna payload that shares architecture with our flight-proven Ku Terminal with over 5,000 hours on orbit. Our solution enables remote-sensing satellites to downlink at 1+ Gbps.

Parameter	Typical Value
<b>Downlink Speed</b>	
Radio Supported Data Rate	Up to 1.75 Gbps
<b>Uplink Speed</b>	
Radio Supported Data Rate	Up to 500 kbps
<b>Transceiver + Memory Unit</b>	
Transmit Frequency	Ka-band EESS: 25.5 - 27.0 GHz
Transmit Power (at antenna interface)	31 to 33 dBm depending on modulation and coding
Transmit Modulation and Coding	Current: All DVB-S2 modcods with ACM 2024: All DVB-S2(X) modcods with ACM
Transmit Symbol Rate	Up to 400 MBd
Receive Frequency	S-band (Space Operations): 2025 - 2110 MHz
Receive Modulation and Coding	Current: Kepler-proprietary spread-spectrum protocol Alternatives available upon request
Receive Symbol Rate	Up to 800 kBd
Receive Noise Figure (at radio interface)	2 dB
Memory Unit Capacity	Up to 3 × 256+ GB solid-state drive
Power Consumption	Full duplex: 40 W; SSD Write Mode: 12 W
Supply Voltage Range	9 to 14 V
Dimensions (L × W × H) and Weight	110 × 115 × 83 mm, <1.25 kg
Software Configurability	Firmware upgradeable on orbit; configurable modcod, symbol rate, frequency
Data and Control Interface	Current: 1 Gigabit Ethernet over Samtec LSHM Upgradeable to 2.5 Gigabit Ethernet
Concept of Operations	Streaming Mode: Directly stream from onboard customer at limit of Ethernet interface. Supports downlink only. Store-and-Forward Mode: Transfer to onboard SSDs prior to pass, then transfer directly from SSDs during pass. Requires full-duplex communication.
<b>Antenna</b>	
Antenna Size (L × W × H) and Weight	64 Element: 205 × 85 × 11 mm, <200 g 256 Element: 205 × 120 × 12 mm, <250 g Additional options available upon request.
Antenna Transmit Frequency	Ka-band EESS: 25.5 - 27.0 GHz
Antenna Transmit Gain	64 Element: 20 dBic 256 Element: 24 dBic
Antenna Transmit 3dB Beamwidth (Half-Width)	64 Element: 6.3° 256 Element: 3°
Antenna Receive Frequency	S-band (Space Operations): 2025 - 2110 MHz
Antenna Receive Gain	5.7 dBic
Antenna Receive 3dB Beamwidth (Half-Width)	4.8°
Antenna Polarization	LCHP or RCHP upon request
Radio Interface	RF over 2 × 2.92 mm connector (RX and TX)