



High-Speed Downlink Solutions Ku Services

Solve the Downlink Bottleneck

Kepler's High-Speed Downlink Service in Ku-band features a software-defined radio and antenna payload with access to Kepler's regulatory licenses and global ground station network, enabling remote-sensing satellites to downlink **20 - 60 GB per pass**. The Ku Terminal has significant flight heritage, with operational time amounting to over 5,000 hours across 21 satellites with no failures.

Parameter	Typical Value
Downlink Speed	
Radio Supported Data Rate	Current: Up to 700 Mbps 2024: Up to 1.75 Gbps (with software upgrade)
End-to-End Service Data Rate	Current: 10-20 GB/pass 2024: 20-60 GB/pass
Uplink Speed	
Radio Supported Data Rate	Up to 520 Mbps
Transceiver + Memory Unit	
Transmit Frequency	Ku-band FSS: 10.7 - 12.75 GHz
Transmit Power (at antenna interface)	31 to 33 dBm depending on modulation and coding
Transmit Symbol Rate	Current: Up to 160 MBd 2024: Up to 400 MBd
Receive Frequency	Ku-band FSS: 14.0 - 14.5 GHz
Receive Symbol Rate	Up to 120 MBd
Receive Noise Figure (at radio interface)	2.5 dB
Modulation and Coding	Current: All DVB-S2 modcods with ACM 2024: All DVB-S2(X) modcods with ACM
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	7 to 14 V
Dimensions (L × W × H) and Weight	110 × 115 × 85 mm, 1.15 kg
Software Configurability	Firmware upgradeable on orbit
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. Store-and-Forward Mode: Transfer to onboard SSDs prior to pass, then transfer directly from SSDs during pass. Requires full-duplex communication.
Antenna	
Dimensions (L × W × H) and Weight	64 element: 205 × 85 × 11 mm, <200 g; additional options available upon request
Antenna Transmit Frequency	Ku-band FSS: 10.7 - 12.75 GHz
Antenna Transmit Polarization	RCHP
Antenna Transmit 3dB Beamwidth (Half-Width)	5.8°
Antenna Receive Frequency	Ku-band FSS: 14.0 - 14.5 GHz
Antenna Receive Polarization	LCHP
Antenna Receive 3dB Beamwidth (Half-Width)	6.2°
Antenna Transmit/Receive Gain	21 dBic
Radio Interface	RF over 2 × SMP connector (RX and TX)