



Viasat's VMT-1220 Ground Mobile Terminals provide affordable, 2-way, "always-on" broadband IP access via satellite while on the move.

Viasat's Ground Mobile Terminal family, (the VMT-1220 series of SATCOM Terminals), offers true broadband IP access to vehicles needing beyond-line-of-sight network access while on the move. The VMT-1220 series supports channel speeds of up to 10 Mbps from the hub gateway to the vehicle and up to 1024 kbps from the vehicle to the hub.

The innovative Viasat ArcLight® spread-spectrum waveform employed by the embedded modem enables the small aperture terminal to operate within FCC and ITU regulatory guidelines for adjacent satellite interference. The waveform is robust against the intermittent blockage (buildings, bridges, trees and other obstacles) that is encountered during ground mobile operations, allowing applications to run without interruption.

The waveform reduces terminal cost and complexity by eliminating the need for high-performance and high-cost antenna implementations required by SCPC or MFTDMA modem waveforms to meet regulatory constraints.

This broadband IP access satisfies many customer needs—including command and control, emergency response, situational awareness, emergency restoral communications, web access, client-server applications, and voice, video and data communications—all while on the move.

The VMT-1220 series Ground Mobile Terminal family is available with a variety of baseband configurations, including modem only, transit case mounted with router and power supplies, and a secure version with KG-250 HAIPE® Type 1 encryption. The baseband suite for the complete terminals includes all necessary equipment for powering the unit from the vehicle's electrical system and housing the equipment in a rugged, shock-isolated enclosure.

Depending on the model, the terminal provides HAIPE Type 1 or FIPS 140-2 encryption, router(s) to supply 10/100BASE-T Ethernet and RJ-11 POTS phone line connections, and TCP/IP acceleration to ensure that applications using TCP/IP achieve maximum speed over the satellite link. The terminals are designed for simple operation on a variety of vehicles and seamless plug-and-play connectivity to any public or private IP network, such as the public internet, NIPRNET, SIPRNET, and/or CENTRIXS.

SYSTEM AT-A-GLANCE

FCC/ITU-compliant On All Satellites

- » Reliable Ku-band communication, without harmful adjacent satellite interference issues, enabled by spread spectrum waveform
- » Increased network efficiency through mobile terminal burst transmission
- » Optimized capacity enabled by closed loop power control and advanced network management

Secure Broadband IP Network Access

- » Up to 10 Mbps shared forward channel (hub-to-mobile) rate
- » Up to 1024 kbps individual return channel burst rate (mobile-to-hub)
- » Protected user IP traffic (HAIPE Type 1 or FIPS 140-2)

Advanced Blockage Mitigation

- » Increased throughput with local blockage detection, burst transmit control, and data buffering
- » Maximum channel capacity with rapid acquisition/reacquisition

Bandwidth Efficiency

- » Low-overhead shared IP network media access
- » Reduced bandwidth cost with frequency reuse overlaying forward and return links simultaneously in same bandwidth

Improved Profile At Lower Cost

- » Improved throughput with lower-cost antenna
- » Thinner antenna lowers overall vehicle profile

Service Options

- » Dedicated or shared hub service through Viasat or Viasat's partners
- » Organic capability can be provided with purchased hub and user-supplied transponder bandwidth

Viasat VMT-1220 Ground Mobile Terminal

SPECIFICATIONS

OPERATING FREQUENCIES

Transmit	14.0 to 14.5 GHz
Receive	10.95 to 12.75 GHz (through field changeable LNBS)

MODULATION AND FEC

Forward Link RX	(O)/QPSK spreading, BPSK data
Return Link TX	GMSK spreading, BPSK data
Spread Factors	
» Return TX	$4 \leq k \leq 150$
» Forward RX	$1 \leq k \leq 23$
FEC	R=1/3 Turbo
Minimum Requirement Eb/No	
» Forward RX	1.7 dB
» Return TX to achieve Quasi-Error Free (QEF)	2.25
Multiple Access	
» Forward RX	TDM
» Return TX	CRMA spread ALOHA
Frequent Reuse	Paired Carrier Multiple Access (PCMA)

TRANSMISSION RATES

Return Link TX	32, 64, 128, 256, 512, 1024 Kbps burst rates
Forward Link RX	500 Kbps to 10 Mbps

RF/TRACKING PERFORMANCE

EIRP	44.5 dBW minimum
G/T	10.5 dB/K minimum
Polarization	Linear
Coverage	
» Continuous azimuth	360°
» Elevation	20° to 70°
Tracking	100°/s/min; 200°/s ² /min

BASEBAND INTERFACES

Data	10/100BASE-T Ethernet
Voice	RJ-11
Console	RS-232 and Ethernet (via telnet)

OTHER FEATURES

Encryption	Type 1 HAIPE® (KG-250); FIPS 140-2 (128, 192 or 256 bit AES) optional
Acceleration	TCP/IP Performance Enhancing Proxy
Telephony	POTS phone connections
Integrated Router	Cisco® Systems 2811 router

POWER

Input	10 to 14 VDC, 20 to 30 VDC or 115 VAC 50/60 Hz
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ENVIRONMENTAL AND PHYSICAL

Operating Temperature	
» Antenna	-30° to 50° C
» In-vehicle Equipment	0° to 40° C
Vehicle Ops	Typical paved and unpaved road operation; some off-road operations
Weight	
» Antenna	<150 lb
» In-vehicle Equipment	<120 lb
Size (W x H x D)	
» Antenna	45 x 144 x 45 in.
» In-vehicle Equipment	22.5 x 14.6 x 24 in.

STANDARD FEATURES	VMT-1220-N	VMT-1220	VMT-1220-S
Mid-profile, auto-tracking, Ku-band antenna	YES	YES	YES
RFE with 25 W HPA and world-wide LNB set (10.95 to 12.75 GHz)	YES	YES	YES
Spread Spectrum network modem	YES	YES	YES
7RU IVE Transit Case with Power Distribution		YES	YES
20-PORT Router with 4 FXS ports, 8 packet-voice/fax ports (FIPS 140-2 encryption optional)		YES (qty 1)	YES (qty 2)
KG-250 (HAIPE Type 1) Encryptor			YES
xPEP (TCP/IP Accelerator)		YES (qty 1)	YES (qty 2)
Vehicle 1.8 kVA Power Converter (12/24 V to 115 VAC) and 2.2 kVA UPS		YES	YES

There are many more optional configurations for mobile terminals. Please contact Viasat to discuss your specific requirements.

CONTACT

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