Professional Modem and TRIA System
Designed for Portable, Vehicle-mounted Applications

The ViaSat Professional Modem and TRIA System is designed for users requiring high throughput data connectivity from a compact portable terminal. The system is based on ViaSat's successful Ka-band technology used in the world's highest capacity satellite, ViaSat-1, the Ka-band direct-to-home Internet service which has become the product of choice with more than a million home terminals shipped. The ViaSat Ka-band network has a record of proven reliability, scalability and performance.

IDEAL FOR RAPID DEPLOY PORTABLE TERMINALS

Small rapid deploy portable systems using the ViaSat Professional Modem and TRIA System are ideal for field reporters, first response, remote medical and peace workers, and many other temporary remote located workers that would benefit from high-speed Internet with the convenience of "near-instant" connectivity. These terminals are optimal for locations where no other communications infrastructure is available. They enable 2-way communication for high data rate streaming video, fast web browsing, IFB applications, file transfers, VPN connections, and other bandwidth-intensive Internet applications.

AVAILABLE TO THIRD PARTY TERMINAL PROVIDERS

The ViaSat Professional Modem and TRIA System provides all the functionality for a third party integrator to design portable satellite ground terminals for use on compatible Ka-Band systems such as KaSat and ViaSat-1. The modem has a custom antenna controller interface. When integrated with the antenna vendor's controller the Modem and TRIA system allows for the construction of "1-button" satellite acquisition, network registration and system operation to deliver the ultimate in ease-of-use to customers.

RAPID SATELLITE ACQUISITION

The modem supports GPS based location inputs to facilitate seamless network entry within the satellite's coverage area. Rapid coarse antenna pointing, and fine antenna peaking is made easy with the ability for external devices such as a vendors Antenna Controller Unit to initiate pointing, receive azimuth and elevation information, and automatically set polarization. While peaking, the modem reports SNR measurements up to 20 times faster than GUI based approaches facilitating faster satellite acquisition and improved pointing accuracy at time of network entry, both of which assure connections at the highest available data rates.

OPTIMIZED FOR HIGH STRESS FIELD APPLICATIONS

ViaSat has developed this variant of the professional TRIA suited specifically for portable operations. The TRIA can be used with fly-away as well as vehicle mounted terminals which experience a more rugged user environment. The Professional TRIA from the Modem and TRIA system is specifically selected for higher transmit power and improved receive noise figure for improved link availability demanded by professional commercial users who rely on these terminals for their success. Precision manufacturing, custom firmware, extensive reliability testing, and internal alignment checks at the factory ensure long term reliable operations in the field.

There are two different options available, one suited for a 75 cm, and one suited for a 120 cm reflector.

VIASAT PROFESSIONAL MODEM–TRIA SYSTEM AT-A-GLANCE

PROFESSIONAL MODEM
- » 20x improvement in SNR reporting
- » GPS input to allow for seamless antenna pointing
- » High-speed two-way performance with up to 20 Mbit/s downstream and 20 Mbit/s upstream
- » 1 RU rack mountable chassis

PROFESSIONAL TRIA
- » Fully integrated L-band to 30 GHz up-converter and 20 GHz to L-band down-converter
- » Integral feed, polarizer and OMT with remote controllable LHCP/ RHCP polarization switch
- » 4W P1 dB output power amplifier
- » 1.4 dB noise figure LNA front end
- » Single IFL cable to the modem
- » Firmware customized for high polarization switch cycles
- » Special factory testing to ensure high reliability operation in portable terminal environments

MODEM SPECIFICATIONS

Remote Device Communication	TCP/IP
Standard ICD provides access to the following:	» GPS Based Terminal Pointing
	» Pointing azimuth and elevation feedback
	» TX enable/disable
	» Improved SNR monitoring speed
	» Audible pointing status enable/disable
	» Pointing status indication
	» Online time
	» Reboot function

FORWARD CHANNEL (SATELLITE TO TERMINAL)

Modulation/Coding

» **16-APSK Rate**	2/3, 3/4, 4/5, 5/6, 8/9
» **8PSK Rate**	3/5, 2/3, 3/4, 5/6
» **QPSK Rate**	1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
» **Adaptive Coding & Modulation**	
Symbol Rate	10 to 52 MSym/s

RETURN CHANNEL (TERMINAL TO SATELLITE)

Modulation/Coding

» **8PSK Rate**	7/12, 2/3, 3/4
» **QPSK Rate**	3/8, 1/2, 5/8, 3/4
» **BPSK Rate**	1/2
» Automatic power control and rate adaptation	
Symbol Rate	625, 1250, 2500, 5000, 10000 and 20000 kSym/s
RF Spectrum FCC	47CFR25.138, 47CFR25.202, ETSI EN 301 459

USER SPEEDS

Forward Channel	Operator configurable up to 50 Mbits/s
Return Channel	Operator configurable up to 20 Mbits/s

QUALITY OF SERVICE (QOS)

Dynamic Service Flows

MANAGEMENT

Remote TCP/IP, local GUI monitoring and control and SNMP-based remote management and control

IP INTERNETWORKING

Per flow queuing	
Layer 3 mode	» Transparent TCP and HTTP acceleration
	» DSCP packet classification and filtering

POWER SUPPLY

Power	100 to 240 VAC; 50 to 60 Hz

INDOOR ENVIRONMENT

Operational Temperature	0° to +40° C
Storage Temperature	-35° to +65° C
Humidity	0 to 95% (non-condensing)
Altitude	3000 m
Shock and Vibration	Per ISTA, Procedure 3A, 2008

REGULATORY

Safety	cULus, CE, CB Scheme
EMC	FCC 47 CFR Part 15 Subpart B, CE
RoHS	Compliant to RoHS Directive 2002/95/EC
REACH	Compliant to REACH Directive

PHYSICAL

Status Indicators Power; Satellite Acquisition; Activity; Fault

Size (WxHxD)	4.3 x 22 x 21 cm
Weight (including power supply)	2.2 kg

INTERFACES

CPE	IEEE 802.3, 10/100/1000 BaseT, RJ-45 connector
Expansion	USB 2.0, type A connector

TRIA SPECIFICATIONS
TRANSMITTER

Transmit Frequency Range	28.1 to 30.0 Ghz
HPA Output Power P1db	35 dBm
Small Signal Gain	56 dB
SSB Phase Noise	-83dBc/Hz at 10 KHz Offset
Transmit IF	1,800 to 2,300 MHz

RECEIVER

Receive Frequency Rance	18.3 to 20.2 GHz
LNA Noise Figure	1.4 dB
Small Signal Gain	55 dB
SSB Phase Noise	-87 dBc/Hz at 10 KHz Offset
Receive IF	300 to 800 MHz
Voltage (IF port)	24 to 57 VDC
DC Power Consumption (at P1dB)	44 to 52 W
Operating Temperature	-40 to +55 °C
Humidity (Condensing)	0 to 100 %
Weight	31 kg
RF Transmit Output Interface	Feed Horn matched to antenna reflector
RF Receive Input	Interface Feed Horn matched to antenna reflector
Polarization	Remote Switchable LHCP/RHCP Tx/Rx Orthogonal
IF Connector(s)	Type "F"
Dimensions (LxWxH incl. heatsink)	321 x 142 x 77 mm
Reliability MTBF (at 30° C Ambient)	> 25,000 hr

ORDERING INFORMATION
PART NUMBER

Modem-TRIA System	1152437
TRIA Only	X0101700 B007
Modem Only	1143775