

MSR-R

The Ruggedized Military Satellite Router



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The MSR-R is a military satellite router that is scalable in both performance and capability, making it an optimal BLOS communication solution for all command levels.

The MSR-R is a robust VSAT solution for deployable and on-the-move arenas.

The MSR-R combines advanced VSAT capabilities with encryption and protocol acceleration and optimization.

The MSR-R has low power consumption together with the ruggedness required for operation in difficult environments. It can work with its embedded encryption module or it can be connected to any external encryption via the dedicated ports and still maintain protocol acceleration and optimization. This robust terminal adapts to changing needs, facilitating the seamless upgrade of system capabilities over satellite with a simple software key. This scalability enables an initial minimal hardware investment with the option of advancing to a more powerful solution without the need to purchase additional hardware.

The MSR-R supports from QPSK to 32APSK modulation and dynamic ACM (adaptive coding and modulation) on the outbound path and QPSK and 8PSK modulation with FEC of $\frac{1}{4}$ and $\frac{3}{4}$ @ QPSK and $\frac{2}{3}$ and $\frac{8}{9}$ @ 8PSK on the inbound path. 32APSK modulation combined with dynamic ACM improves the link efficiency by more than 50% compared to DVB-S2 8PSK modulation and CCM. Furthermore, the MSR-R's dynamic ACM enables it to have link availability up to 100% regardless of weather conditions.

The MSR-R supports DVB-S2/ACM in addition to the DVB-S standard. It supports standard-based solutions that employ advanced technologies to offer unparalleled efficiency and functionality. On the forward link, the support of DVB-S2/ACM technology includes advanced LDPC coding and QPSK to 32APSK modulations for improved performance. The terminal supports LDPC codes, dual continuous and burst mode operation and data rates of up to 4Mbps. It has a set of networking capabilities, including advanced quality of service (QoS) supporting TOS-DSCP, CB-WFQ and application

prioritization, VLAN pass through and VLAN creation for easy support of MPLS and network separation with low overhead. It also has an embedded encryption module. The MSR-R is designed for governmental and military solutions suitable for deployable and on-the-move arenas. The terminal is ideal for:

- C2 applications
- LOS backup
- LOS aggregation
- Special forces
- LOS backhaul
- Tactical vehicles
- Broadcast
- LOS diversity
- AUV AHF/SHF/UHF satellites
- Mobile CP
- Marine forces
- UAV
- UGV

The MSR-R comes equipped with a 10/100 BaseT Ethernet port for direct connection to clear data; RS232 via USB and/or Ethernet port for direct connection to clear service; and RS232 via USB and/or Ethernet port for direct connection to secure service.

Technical Specifications

Indoor Unit	
DC Power	24 VDC /3A
LAN Interface	Dual Ethernet (IEEE 802.3), 10/100 BaseT, Auto detect
L-Band Input/Output Connectors	TNC-Connector, 50 Ohm
Dimensions	200 X 200 X 80 (W X D X H) mm
Weight (including power supply)	3 Kg.
Clear Data Interface	Ethernet 10/100 BaseT
Clear Service Interface	RS232 – EIA/TIA-232 (Via USB connector), Telnet RG-45
Secure Service Interface	RS232 – EIA/TIA-232 (Via USB connector), Telnet RG-45
Encryption Interfaces	Ethernet 10/100 BaseT
Power Consumption	30W
Transmitter	
IF Range	L-band (950-1700MHz)
Access	Dynamic BM-FDMA, FDMA, DAMA & Bandwidth On Demand, SCPC
Modulation	8PSK, QPSK (Spacing 1.22 to 1.35 configurable)
Coding & FEC	Turbo Code (DVB-RCS) R=3/4@QPSK, R=2/3, 8/9 @8PSK, LDPC R=1/4, 3/4@QPSK, R=2/3, 8/9 @8PSK
Information Rate	Up to 4Mbps
Signal Level	-45 to -5.5 dBm
Receiver	
IF Range	L-band (950-2150 MHz)
Access	DVB-S2/ACM, DVB/S broadcast (ETS 300 421) Packed/Unpacked mode of MPE over DVB-S MPEG2-TS CCM, VCM, ACM
Modulation	QPSK/8PSK/16APSK/32APSK (for DVB-S2/ACM), BPSK/QPSK (as per DVB-S)
Coding & FEC	DVB-S2/ACM QPSK,8PSK,16APSK,32APSK: LDPC (rates 1/2, 2/3, 3/4, 3/5, 5/6, 8/9, 9/10) DVB-S Convolution with Reed-Solomon (188/204) (rates 1/2, 2/3, 3/4, 5/6, 6/7, 7/8)
Channel Rate	1 to 45 Msps (DVB-S2/ACM, DVB-S)
Information Rate	1 to 160 Mbps (Per DVB-S2/ACM) 1 to 72 Mbps (Per DVB-S)
Signal Level	L- Band -65 to -35 dBm
Dual receiver	Optional
Networking	Support of 802.1q, DHCP(server & Relay), NAT, PAT
Utilities	Inbound and outbound ACM, BoD, TRC, QoS-DSCP, acceleration
Protocols	IP, TCP, UDP, ICMP
Encryption	AES256 bit encryption, HASH-based message authentication code SHA2, automatic key generation and key exchange mechanism (DH), Layer 3 (IP) encryption, X.509 certificates authentication

Outdoor Unit	
RF Frequency Band	C, extended C, Ku, extended Ku, Ka, X
Transmit level	4Amps (upon request up to 6Amps)
Receiver	Standard DRO LNB
Power Supply	24 VDC /2A, supplied via RF cable
Frequency Reference	10 MHz, supplied via RF Cable
LNB Power and Signaling	Switchable 13/18VDC up to 350 mA, 22 KHz tone, 10Mhz supplied via RF cable

Standard Compliance	
Safety	CE, EN 60950-1:2001; A11:2004 ITE, IEC 60950-1 Ed 2.0 b:2005
EMI/EMC	FCC part 15, Class B EN 61000-3-2:2001, EN 61000-3-3:1995 A1:2000, EN 300 386-2, EN 301 489-1 AS/NZS CISPR 22:2006
Standard Conformity	MIL-STD-461-E, MIL-STD-810-F, MIL-STD-1275B DVB-S2/ACM, ETSI EN 302 307 v.1.1.1 (2004-01) DVB-S, IESS-308, ETSI TBR

Environmental Conditions	
Indoor Unit	
Operating Temperature	-20°C to 55°C
Storage Temperature	-25° to +85° C
Humidity	5% to 95% non-condensing
Altitude	Up to 10,000 feet
Outdoor Unit	
Operating Temperature	-40° to +55° C
Storage Temperature	-40° to +70° C
Relative humidity	Up to 100%
Altitude	Up to 10,000 feet



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