



WiMax/OFDM

MAKSATMMS



+/- 2.5 MHz



### Radio Bridge & Router

Data Rate up to 30 Mbps in 2.3-2.7GHz and 70 Mbps in 4.9-6.1 GHz  
Operational Range – 40kms

MAKSAT MMS plus balances enterprise-scale security, management and Quality of Service features with high performance.

#### Features Benefits

The MAKSAT MMS Plus Radio Bridge & Router is a any Point to Multipoint and Multipoint-to Multipoint OFDM Radio Bridge Equipment for High Bandwidth connectivity of up to 30Mbps in 2.3-2.7GHz and up to 70Mbps in 5.7 GHz bands. It has a range of up to 100kms with the possibilities of other interfaces like E1/E2 in addition to Ethernet.

#### HOTSPOT

Built-in HOTSPOT and SPUTNIK AGENT, plus PPPOE server/client

#### Built-in Router Specifications:

##### Basic Network Platform

TCP/IP protocol suite

##### Firewall and NAT

Packet filtering, source and destination NAT, source MAC addresses, ports, protocols, protocol options, interfaces.

##### Routing

RIP 1 / 2, OSPF v2, OLSRD, BGP v4, equal cost multi-path routing, Policy based routing, firewall marked packet routing

##### Bridging

Spanning tree protocol, multiple bridge interfaces, bridge firewall

##### Bandwidth Management

Per IP / protocol / subnet / port, CBQ, RED, SFQ, byte limited queue, packet limited queue

##### PPPoE

Access Concentrator (server)

##### Tunnels

PPTP, EoIP (Ethernet over IP)

**OPEN VPN** support for super secrecy

**Multicasting** support (beta available)

**VLAN**, Virtual LAN support

**NTP** Network Time Protocol server and client



#### QOS

Full Scale QOS with traffic shaping and user friendly Presets .

#### DNS client/Server

Name resolving for local use, Dynamic DNS Client

#### Monitoring/Accounting

IP traffic accounting, firewall actions logging

#### SNMPV2

read only access

#### Administration

##### General

History, undo / redo /display, multiple administrator connections real time updates in, real time Configuration

##### Web/GUI

Uses HTTP/ HTTPS for remote administration, graphing of traffic, statistics, and resource

monitoring multiple internal configuration windows Terminal Console standard keyboard and monitor connection, scripting import /export of configuration scripts to screen / file command history, hierarchical command structure monitoring of interface status and traffic, context specific hints.

##### Telnet/ SSH

All terminal console features, SSH option, cut/paste of configuration

##### FTP

For uploading upgrade packages, uploading and downloading scripts, Hot Spot authorization.

##### Upgrading

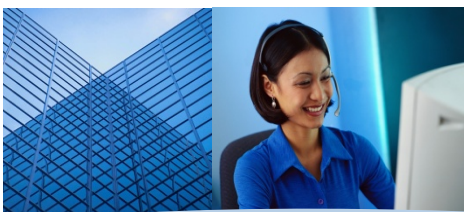
Remote Firmware Upgrade

## Features

- Pre WiMAX / OFDM  
...5MHz & 10MHz
- Any Point to Any point and  
Multipoint to Multipoint.
- IP Routing
- OLSR & OSPF
- Ultra Secure Wireless  
256 bit AES, WPA and  
WPA2 encryption, Security,  
VPN and firewall
- GUI, Telnet, SNMP Remote  
Management
- QOS with Traffic Shaping
- 3 level Watch Dog Timer
- Sensitivity of (-)105 XR  
Rate (Best in the Industry)
- Firewall with packet filter &  
NAT
- Upto 76 non overlapping  
Channels in 2.3 to 2.7GHz  
(14non overlapping in ISM  
Band)
- Upto 237 non overlapping  
in 4.9-6.1 GHz
- Transmit Power Control
- Dynamic Frequency Select
- Multiple RF interfaces  
[OPTIONAL]
- RS-232/422/485 3-in-1  
serial port [OPTIONAL]

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WiMax/OFDM LONG RANGE

**MAKSAT MMS MAX**



+/- 2.5 Mhz

### RS-232/422/485 3-in-1 serial port [OPTIONAL]

#### Product Features

- Versatile socket operation modes, including TCP Server, TCP Client, UDP, Ethernet Modem, and Pair Connection
- Real COM/TTY drivers for Windows and Linux
- Easy-to-use Management Suite
- Cigarette pack size
- Fast Ethernet or Standard Ethernet
- 2- or 4-wire RS-485 with patented Automatic Data Direction Control
- Built-in 15 KV ESD Protection for all serial signals

#### Software Features

*Protocols:* DHCP, BootP, Telnet, TCP, UDP, IP, ICMP, ARP

*Utilities:* Management Suite for Windows, Linux

*Configuration:* Serial console via RS-232, Telnet console via Ethernet

#### LAN

*Ethernet-:* 10/100 Mbps, RJ45 (DE-311) 10 Mbps, RJ45 (DE-211)

*Protection:* Built-in 1.5 KV magnetic isolation

#### Serial

*Interface:* RS-232/422/485 x 1, DB9 (F) (DE-311), DB25 (F) (DE-211), switch selectable

*RS-232 Signals:* Tx+, Rx+, RTS, CTS, DTR, DSR, DCD, GND

*RS-422 Signals:* Tx+, Tx-, Rx+, Rx-, RTS+, RTS-, CTS+, CTS-, GND

*RS-485 (2-wire) Signals:* Data+, Data-, GNDRS-485 (4-wire) Signals

*RS-485 (4-wire) Signals (DE-211 only):* Tx+, Tx-, Rx+, Rx-, GND

*Serial Line Protection:* 15 KV ESD for all signals

*RS-485 Data Direction:* Patented Automatic Data Direction Control

#### Serial Communication Parameters

*Parity:* None, Even, Odd, Space, Mark

*Data Bits:* 5, 6, 7, 8

*Stop Bit:* 1, 1.5, 2

*Flow Control:* RTS/CTS, XON/XOFF

*Speed:* 50 bps to 230.4 Kbps

### Radio Technical Specifications

Frequency Range	2.30 -2.70 GHz, 4.9 - 6.1 GHz
Number of Channels	76 non overlapping (2.3-2.5GHz) 237non overlapping (4.9-6.1 GHz)
Channel Width	(+/-) 2.5 Mhz, 5 Mhz, 10 Mhz
Pre WiMax	Yes, 5Mhz & 10Mhz
Receive Sensitivity (1e-6 BER)	1 Mbps -98 dBm 2 Mbps -96 dBm 6 Mbps -94 dBm 9 Mbps -93 dBm 11 Mbps -92 dBm 12 Mbps -91 dBm 18 Mbps -90 dBm 24 Mbps -86 dBm 36 Mbps -83 dBm 48 Mbps -77 dBm 54 Mbps -74 dBm
Max Receive Level	0 dBm (no damage)
Processing Gain	> 10 dB
Antenna Connector	N Female (2 antenna connectors)
Option of Additional RF Interface	Yes, upto 2
Option of Additional Ethernet 10/100 Interface	Yes, upto 3
Wireless Data Rate	54 Mbps, 108 Mbps
Super fast Mode upto 108 Mbps	Yes
RF Modulation Scheme	QAM64, QAM16, QPSK, BPSK, CCK (OFDM, DSSS)
Duplex Format	TDD, FDD
Certification	FCC, ISO 9001-2000
Range	Up to 100 Km
Output Power	0-23dBm
Software controllable	Yes (Steps of 1 dB)
Extended Range (XR)	Best in the industry (-) 105 dBm
Watch Dog Timer	Software/Hardware/Temperature
QOS/COS/GOS	Yes

Bandwidth Management	Yes
Router	Yes
Monitor/Control	Through Ethernet port using Winbox/Telnet
Packet Format	IEEE 802.3 and Ethernet II
Network Connection	10 /100 Base T RJ Female Ethernet Connection
Bridge Functionality	Intelligent Local Packet Filtering (self-learning), Node by node user configurable data rates (CIR and MBR)
Network Topologies	Any point-to Multipoint Multipoint-to Multipoint
Repeater Mode	Built-in Mode
RF Collision Management	Combined TDD and FEC
Security	256 bit AES, WPA and WPA2 encryption, Security, VPN and firewall
Data Security Password	Network attachment is password protected
Remote Management	HTTP, Telnet
Management Port	Ethernet using Winbox, Telnet
SNMP	MIB2
Management Port Functionality	Full configuration/management from any station through a command line
Software Management	File download over RF for firmware updates
Power Adapter Requirement	110 VAC or 220 VAC, 7V - 18V DC
Power Consumption	Less than 20W (fully loaded)
Height x Width x Depth Weight	7" x 11" x 5" 3Kg
Operational Temperature	(-)40C to (+)80C
Humidity	Humidity 0-95% non condensing, Outdoor weatherproof enclosure

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