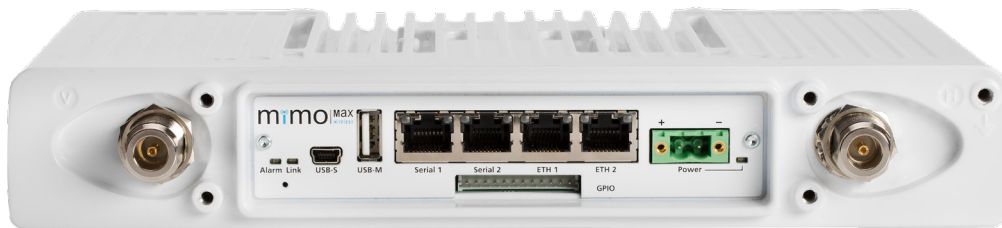


MIMOMAX TORNADO

Radio Spec Sheet



The Ubiik Mimomax Tornado is a full-duplex, software flexible, ultra spectrally efficient, long range point-to-multipoint remote radio unit with built-in intelligent network features for Critical Network Infrastructure. With scalable data rates and an efficient random access protocol, it can provide near real-time access to a large number of remote sites with very high reliability and low latency. The Ubiik Mimomax Tornado is fully compatible with all Ubiik Mimomax narrowband products and provides economical SCADA and Telemetry solutions to remote sites in the Power, Gas and Water acquisition and distribution industries.

KEY FEATURES

- ▶ *Point-to-Point, Point-to-Multipoint*
- ▶ *Linux Applications Engine*
- ▶ *Ultra Spectrally Efficient*
- ▶ *Scalable Data Throughput Rates*
- ▶ *SCADA, Telemetry & Data Solutions*
- ▶ *Software Flexible & Intelligent*
- ▶ *Very Low Latency*
- ▶ *Very Low Power Consumption*
- ▶ *Capacity to Simultaneously Operate in Poll and Interrupt Modes*
- ▶ *400MHz, 700MHz, 800MHz, 900MHz Licensed Spectrum*
- ▶ *Ethernet, Serial & USB Interface*
- ▶ *IP Data Encryption & Firewall Security*
- ▶ *Advance Software Features*
- ▶ *User Settable Frequency*
- ▶ *User Programmable Power*
- ▶ *Indoor & Outdoor Mountable*

TORNADO RADIO SPECIFICATIONS				
		400MHz	700MHz	900MHz
Gross Data Rates	75kH 50kHz 25kHz 12.5kHz	240/480/720/960kbps <i>Uplink and/or downlink</i> 480/960/1440/1920kbps <i>Full-duplex (available at 900MHz)</i> 160/320/480/640kbps <i>Uplink and/or downlink</i> 320/640/960/1280kbps <i>Full-duplex</i> 80/160/240/320kbps <i>Uplink and/or downlink</i> 160/320/480/640kbps <i>Full-duplex</i> 40/80/120/160kbps <i>Uplink and/or downlink</i> 80/160/240/320kbps <i>Full-duplex</i>		
Configuration		2 x 2 Full Duplex MIMO		
Supply Voltage		10.5v DC to 60V DC		
Maximum Power Consumption		26W (at 13.8V) 20W typical		
Standby Power Consumption		<6W typical		
Ambient Temperature Range		-30°C (-40°C) to +60°C (+70°C)		
Mounting		1U High Rack Mount Pole Mount Wall Mount DIN Rail Mount		
Dimensions (L x W x H)		180 x 270 x 44mm		
Weight		2 kg <i>radio unit only, excl. mounts</i>		
RECEIVER				
Modulation		QPSK/16/64/256QAM		
Number of MIMO receivers		2		
Symbol Rate	75kHz 50kHz 25kHz 12.5kHz	- 2x40k symbols/sec 2x20k symbols/sec 2x10k symbols/sec	- 2x40k symbols/sec 2x20k symbols/sec 2x10k symbols/sec	2x60k symbols/sec 2x40k symbols/sec 2x20k symbols/sec 2x10k symbols/sec
Modulation ⁽³⁾ Sensitivity for 10 ⁻⁴ BER	75kHz 50kHz 25kHz 12.5kHz	- <-109.5/103/97/91dBm <-112.5/-106/-100/-93.5dBm <-115.5/-109/-103/-96dBm	- <-110.5/-104/-98/-92dBm <-113.5/-107/-101/-94.5dBm <-116.5/-110/-104/-97dBm	<-107.5/-101/-95/-89dBm <-109.5/103/97/91dBm <-112.5/-106/-100/-93.5dBm <-115.5/-109/-103/-96dBm
Modulation ⁽³⁾ Sensitivity for 10 ⁻⁶ BER	75kHz 50kHz 25kHz 12.5kHz	- <-108.5/-102/-96/-89.5dBm <-111.5/-105/-99/-92dBm <-114.5/-108/-102/-94.5dBm	- <-109.5/-103/-97/-90.5dBm <-112.5/-106/-100/-93dBm <-115.5/-109/-103/-95.5dBm	<-106.5/-100/-94/-87.5dBm <-108.5/-102/-96/-89.5dBm <-111.5/-105/-99/-92dBm <-114.5/-108/-102/-94.5dBm
Frequency Range		400-430MHz 420-450MHz 440-470MHz	757-758 and 787-788MHz	806-869MHz 852-933MHz 896-960MHz
Frequency Step Size		5 kHz & 6.25 kHz selectable		
Frequency Accuracy and Stability		better than +/- 1ppm		
Nominal Channel Bandwidth		12.5 kHz, 25 kHz, 50kHz (<i>75kHz is software upgradeable at 900MHz</i>)		
TRANSMITTER				
RF Power Output		Avg. before duplexer 2 x 26dBm, Avg. after duplexer 2 x 24dBm Peak before duplexer 2 x 34dBm, Peak after duplexer 2 x 32dBm		
RF Power Control Range		>20 dB		
Other Details		<i>Modulation, Number of MIMO receivers, Symbol Rates, Frequency Range, Frequency Step Size, Frequency Accuracy and Stability are the same as Receiver</i>		
DUPLEXER (INTERNAL)				
Type		Bandpass		
Tx / Rx Split		5 MHz minimum	30 MHz	9 MHz minimum
Frequency Range		400 to 470 MHz	757-758 & 787-788 MHz	806 to 960 MHz
Duplexer Sub Bands		400-430 MHz 440-450 MHz 450-470 MHz	757-758 to 787-788 MHz	806-869 MHz 852-933 MHz 896-960 MHz
Stop Band Attenuation		>60 dB @ >5 MHz from centre	>75 dB	>60 dB @ >9 MHz from centre
Pass Band Bandwidth		1 MHz min	3 MHz (-0.5dB)	4 MHz (-0.5dB)
DUPLEXER (EXTERNAL)				
Type		Bandpass	<i>Available on request</i>	Bandpass
Tx / Rx Split		4.5 MHz		6 MHz minimum
Frequency Range		400 to 470 MHz		806 to 960 MHz
Insertion Loss		<1.75 dB		<1.5 dB
Stop Band Attenuation		>70 dB		>70 dB
Pass Band Bandwidth		2 MHz (-0.5dB)		tunable, 1 MHz min
Mounting		2U High Rack Mount		1U High Rack Mount
INTERFACE (DIGITAL & ANALOGUE)				
ETHERNET		Dual 10BaseT/100BaseT Connector: 2 x RJ45		
ASYNCHRONOUS SERIAL		Format: Dual RS232 Connector: 2 x RJ45 Baud Rate: 300 - 115,200 baud		
USB		High speed USB 2.0 Connector: Type A and mini B		
ALARM		1 set of volt-free change over contacts		
GPIO <i>Analogue/Digital</i>		4 x s/w configurable I/O ports		
FREQUENCY REFERENCE <i>Input/Output</i>		isolated differential pair		

Important: Specifications are subject to change without prior notice. Please visit ubiikmimomax.com for more info, or email us at sales@ubiikmimomax.com.