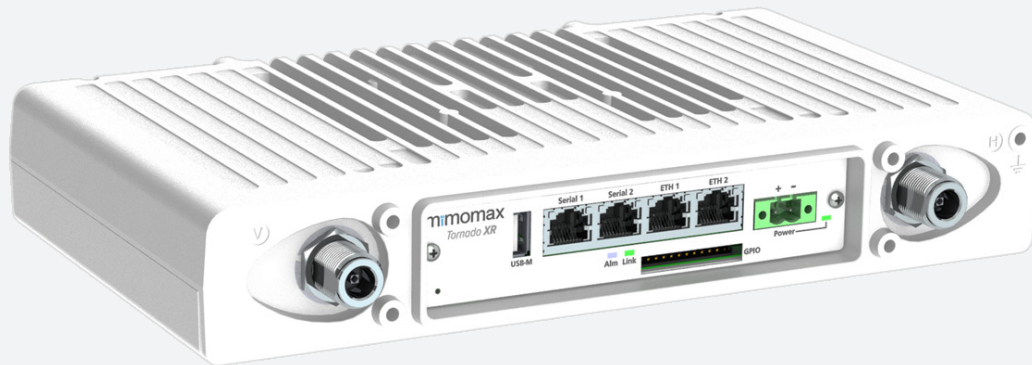


# UBIIK MIMOMAX TORNADO XR

## 900MHz Radio Spec Sheet



Tornado XR is a full duplex, high Tx power remote radio for use in Multipoint networks.

Software flexible and with a stable Tx power across all modulations, the Tornado XR is fully compatible with our standard Tornado. Like all of the Tornado family, this radio is ultra-spectrally efficient and offers extremely low latency for near real-time network visibility.

Tornado XR is an ideal remote radio for networks where traffic is uplink predominant. It can also be integrated at weak remote sites to boost uplink performance.

Available in 900MHz and in 12.5kHz, 25kHz, or 50kHz channel sizes.

### KEY FEATURES

- ▶ *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*
- ▶ *Full-duplex*
- ▶ *Capacity to Simultaneously Operate in Poll and Interrupt Modes*
- ▶ *900MHz Licensed Spectrum*
- ▶ *Ethernet, Serial & USB Interface*
- ▶ *IP Data Encryption & Firewall Security*
- ▶ *Advance Software Features*
- ▶ *User Settable Frequency*
- ▶ *User Programmable Power*
- ▶ *Indoor & Outdoor Mountable*



# 900MHz UBIK MIMOMAX TORNADO XR SPECIFICATIONS

General		
Gross Data Rates	50 kHz	320/640/960/1280kbps <i>Full-duplex</i>
	25 kHz	148/297/446/594kbps <i>Full-duplex (Part 24)</i>
	12.5 kHz	71/143/214/286kbps <i>Full-duplex (Part 24)</i>
Configuration	2 x 2 Full Duplex MIMO	
Supply Voltage	10.5v DC to 60V DC	
Power Consumption	Peak	100W
	100% duty cycle	67.5W
	25% duty cycle	22.5W
Standby Power Consumption	<7.75W typical	
Ambient Temperature Range	-30°C (-40°C) <sup>(1)</sup> to +60°C (+70°C) <sup>(8)</sup>	
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	2x40k symbols/sec (50 kHz)	
	2x18.576k symbols/sec (25kHz) <i>(Part 24)</i>	
	2x8.929k symbols/sec (12.5kHz) <i>(Part 24)</i>	
Modulation <sup>(2)</sup> Sensitivity <sup>(3)</sup> for 10 <sup>-4</sup> BER	50 kHz	<-109.5/-103/-97/-91dBm
	25 kHz	<-112.5/-106/-100/-93.5dBm
	12.5 kHz	<-115.5/-109/-103/-96dBm
Modulation <sup>(2)</sup> Sensitivity <sup>(3)</sup> for 10 <sup>-6</sup> BER	50 kHz	<-108.5/-102/-96/-89.5dBm
	25 kHz	<-111.5/-105/-99/-92dBm
	12.5 kHz	<-114.5/-108/-102/-94.5dBm
<i>Measurements via duplexer at antenna port</i>		
Frequency Range	896-960 MHz (other frequencies available on request)	
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	

Compliances	
Radio Performance	FCC 47CFR part 24
EMC	FCC 47CFR part 15
Environmental	60950-22 Outdoor Safety <sup>(7)</sup>
Safety	EN 62368-1: 2014 + A11: 2017

**Important:** Specifications are subject to change without prior notice

- (1) -40°C for continuous operation.  
 (2) Systems employing modulation swapping will automatically reduce the modulation order at a signal level higher than the specified sensitivity level.  
 (3) Sensitivity as specified includes forward error correction and internal duplexer loss.  
 (4) Tornado RF output remains constant at all modulations.  
 (5) The maximum acceptable frequency shift without retuning the duplexer is also subject to the stop band performance.  
 (6) Available via external media converter.  
 (7) Designed to meet  
 (8) +70°C for RRU-T with 25% duty cycle.

Transmitter	
Number of MIMO transmitters	2
Modulation	QPSK/16/64/256QAM
Symbol Rate	2x40k symbols/sec (50 kHz)
	2x18.576k symbols/sec (25kHz) <i>(Part 24)</i>
	2x8.929k symbols/sec (12.5kHz) <i>(Part 24)</i>

RF Power Output <sup>(4)</sup>	Avg. before duplexer 2x36dBm Avg. after duplexer 2x34dBm Peak before duplexer 2x44dBm Peak after duplexer 2x42dBm
RF Power Control Range	>20 dB
Frequency Range	896-960 MHz
Frequency Step Size	5 kHz & 6.25 kHz selectable
Frequency Accuracy and Stability	better than +/- 1ppm

Duplexer (Internal)	
Type	Bandpass
Tx / Rx Split	9 MHz minimum
Frequency Range	896-960 MHz other frequencies available on request
Stop Band Attenuation	>70 dB
Pass Band Bandwidth <sup>(5)</sup>	1 MHz

Duplexer (External)	
Type	Bandpass
Tx / Rx Split	3.6 MHz minimum
Frequency Range	806 to 960 MHz
Insertion Loss	<1.5 dB
Stop Band Attenuation	>70 dB
Pass Band Bandwidth <sup>(6)</sup>	2 MHz
Mounting	To be confirmed

Interfaces (Digital & Analogue)	
<b>ETHERNET</b>	Dual 10BaseT/100BaseT
Connectors	2 x RJ45
<b>ASYNCHRONOUS SERIAL</b>	(Other data interfaces available via external media converters <sup>(6)</sup> )
Format	Dual RS232
Connectors	2 x RJ45
Baud Rate	300 - 115,200 baud
USB	High speed USB 2.0
Connectors	Type A
<b>ALARM</b>	1 set of volt-free change over contacts
<b>GPIO Analogue/Digital</b>	4 x s/w configurable I/O ports
<b>FREQUENCY REFERENCE Input/Output</b>	isolated differential pair