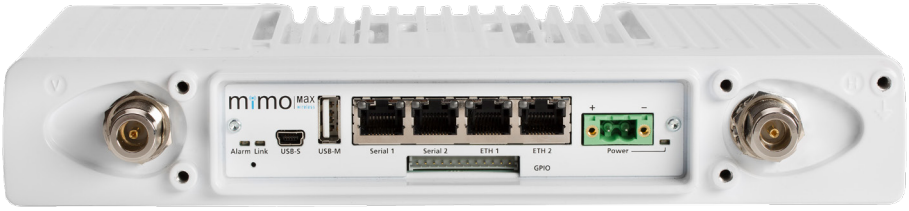
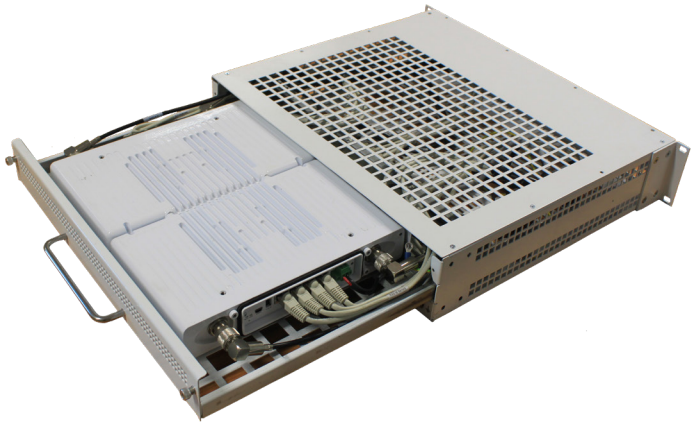
mimomax

MIMOMAX TORNADO 1+1 SYSTEM

Radio Spec Sheet





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

This system provides automated support for both a warm and hot standby system where if one radio fails a second standby radio is automatically switched in to take over. The faulty radio can to be replaced without impacting the operating radio, enabling the system to operate without loss of data. The Tornado 1+1 system offers multiple configurations with the ability to switch over Serial, GPIO, alarm and antenna ports. The design also provides the flexibility of an optional two-antenna solution, where each radio has its own antenna to provide a redundant antenna solution.

Operating in the licensed frequency bands between 400-470MHz and 806-960MHz, 700Mhz Upper A-Block and VHF, with a wide temperature operating range. The Tornado enables unrivalled performance while maintaining Mimomax's renowned reputation for reliability and operational efficiency.

MIMOMAX TORNADO 1+1 SYSTEM SPECIFICATIONS

1+1 available across Tornado range. For the detailed specification of the radio units see the Tornado radio unit specification sheet.

Electrical Specification			
Power Supply			
Rated Input Voltage	Normal Operation		13-50 V
Extreme Input Voltage	Normal Operation		10.5-60 V
Total Power Consumption	Idle, Tx Off	Warm Swap	12.3-17.7 W
		Hot Swap	12.5-17.7 W
	Tx Active	Warm Swap	27-36.1 W
		Hot Swap	41.5-54.5 W
Power Consumption Per Power Connector	Idle, Tx Off		6.25-10.1 W
	Tx Active		21-28.5 W
Ethernet			
Tx Peak Differential Voltage	100Base-Tx, 100 Ohm termination		1.00-1.05 V
Tx Voltage Imbalance	100Base-Tx, 100 Ohm termination		2%
Tx Rise/Fall Time	100Base-Tx		3-5 ns
Tx Rise/Fall Imbalance	100Base-Tx		0-0.5 ns
Tx Duty Cycle Distortion	100Base-Tx		+/- 0.5 ns
Tx Overshoot	100Base-Tx		5%
Tx Output Jitter	100Base-Tx, Peak to Peak		0.7-1.4 ns
Tx Peak Differential Voltage	10Base-T, 100 Ohm termination		2.4 V
Tx Output Jitter	10Base-T, Peak to Peak		1.4-11 ns
Rx Squelch Threshold	10Base-T, 5MHz square wave		400 mV
Serial			
Output Voltage Swing	Loaded with 3kOhms to ground		+/- 5 to +/-5.4 V
Output Short Circuit Current			-60 to +60 mA
Input Voltage			-25 to +25 V
Input Low Threshold	Temperature ambient = +25		0.8-1.5 V
Input High Threshold	Temperature ambient = +25		1.8-2.4 V
5VDC Output Current			200 mA
GPIO			
Input Voltage	Input		-0.3-60 V
Current Sinking Capability	Output driving low		100 mA
Input Impedance			109 kOhms

Electrical Specification		
Alarm	Input Current (max)	300 mA
	Switching Voltage (max)	33 VDC
Reference Input	Level	-5 to +20 dBm
	Frequency	10 MHz
Reference Output	Level	0 dBm
	Frequency	10 MHz
1+1 Specific		
Radio Switch Over Time		1 S
IP Configuration Switch Over Time (1)		7 S

Physical Specification	
Dimensions (L x W x H)	17.32 x 15.75 x 3.46 in (440 x 400 x 88 mm) 2U standard size 19 inch rack
Weight	+/- 14kg (9kg chassis)
Minimum Operating Temperature	-22ºF (-30ºC)
Maximum Operating Temperature	+140ºF (+60ºC)
Maximum Operating Humidity	95%RH Non-Condensing
Minimum Storage Temperature	-40ºF (-40ºC)
Maximum Storage Temperature	+176ºF (+80ºC)
Maximum Storage Humidity	95%RH Non-Condensing

Compliances			
RF Bands	400-470 MHz	757-758 and 787-788 MHz	806-960 MHz
Radio Performance	FCC 47CFR part 90	FCC 47CFR part 27	FCC 47CFR part 101
	IC Canada		IC Canada (RSS-119)
	ACMA Spectrum Impact		ACMA Spectrum Impact
	ETSI EN 300-113		
EMC	FCC 47CFR part 15	FCC 47CFR part 15	FCC 47CFR part 15
	AS/NZS/ CISPR22		AS/NZS/ CISPR22
	EN301 489		
Safety	IEC 60950-1: 2005, Am 1: 2009	IEC 60950-1: 2005, Am 1: 2009	IEC 60950-1: 2005, Am 1: 2009

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