

9XTend™ OEM RF Module

1 Watt - 900 MHz - Long Range OEM RF Module by MaxStream, Inc.

Long Range Performance

Indoor/urban Range:	up to 3000' (900 m)
Outdoor line-of-sight Range:	up to 40 miles (64 km)
Transmit Power Output:	1mW - 1W (software selectable) up to 4 Watts EIRP w/6 dB antenna
Receiver Sensitivity:	-110 dBm (@9600 bps)
Throughput Data Rate:	9600 or 115200 bps (software selectable)



Advanced Networking & Security

Encryption:	256-bit AES Encryption AES algorithm is FIPS-197 certified
Spread Spectrum Type:	FHSS (Frequency Hopping Spread Spectrum)
Streaming, Acknowledged & Multi-Transmit modes supported	

RS-232/485, USB & Ethernet interface packages available

Easy-to-Use

No configuration is necessary for out-of-box RF operation. Simply feed data into one module, then the data is sent out the other end of a long range wireless link.

If more advanced functionality is needed, the module supports an extensive set of AT and binary commands.



High performance and low cost made the 9XTend OEM RF Module "Product of the Year" in 2004. Award was given by eeProductCenter (of the EETimes Network).

Highlights



Price-to-Performance Value.

Due to innovations stamped in its design, the 9XTend yields 2-8x the range of competing modules. This allows OEMs & integrators to cover more ground with fewer devices.

Additionally, 9XTend Modules are easy-to-use and therefore greatly reduce the cost of data system development.



256-bit AES Encryption.

The 9XTend provides security through data encryption that is not available on competing modules. The Advanced Encryption Standard (AES) is used with a 256-bit key.

No time penalty is incurred during encryption or decryption.



Receiver Sensitivity.

MaxStream modules 'hear' what others cannot; therefore supplying greater range and reliability in wireless links.

9XTend Modules outperform higher costing modems due in large part to range gained through superior RX sensitivity.



Low Power Consumption.

For power-sensitive applications, several sleep modes are available. The Shutdown pin allows for current consumption that reaches below 1 µA.



FCC (U.S.A.) & IC (Canada) Approved.

Contact MaxStream for complete list of certifications.

Sample Applications

Monitoring of remote systems



Sensor data capture in embedded systems



Home automation & building control



SCADA (Supervisory control & data acquisition)



Fleet management & asset tracking



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9XTend™ 900 MHz OEM RF Module

Specifications			
Performance	Transmit Power Output (software selectable)		1 mW - 1 W (0 - 30 dBm)
	Indoor/Urban Range (w/ 2.1 dB dipole antenna)		up to 3000' (900 m)
	Outdoor RF line-of-sight Range (w/ 2.1 dB dipole antenna)		up to 14 miles (22 km)
	Outdoor RF line-of-sight Range (w/ high-gain antenna)		up to 40 miles (64 km)
	Interface Data Rate (software selectable)		10 - 230400 bps (including non-standard baud rates)
	Throughput Data Rate (software selectable)		9,600 bps 115,200 bps
	RF Data Rate		10,000 bps 125,000 bps
	Receiver Sensitivity		-110 dBm -100 dBm
Power Requirements	Receive Current		80 mA
	Shutdown Pin Power-down		< 1 µA
	Pin Sleep Power-down		147 µA
	Idle Currents	16 sec cyclic sleep	0.3 - 0.8 mA
		8 sec cyclic sleep	0.4 - 1.4 mA
		4 sec cyclic sleep	0.6 - 2.6 mA
2 sec cyclic sleep		0.9 - 4.8 mA	
1 sec cyclic sleep		1.6 - 8.7 mA	
Networking & Security	Frequency		ISM 902 - 928 MHz
	Spread Spectrum		FHSS (Frequency Hopping Spread Spectrum)
	Modulation		FSK (Frequency Shift Keying)
	Supported Network Topologies		Peer-to-peer (no master/slave dependencies), Point-to-point, Point-to-multipoint & Multidrop
	Channel Capacity		10 hop sequences share 50 frequencies
	Encryption		256-bit AES Encryption AES algorithm meets Federal Information Processing Standard-197 (FIPS-197)
Physical Properties	Module Board Size		1.44" x 2.38" x 0.20" (3.65 cm x 6.05 cm x 0.51 cm)
	Weight		0.64 oz (18 g)
	Connector		20-pin, 2 rows, 2 mm spacing
	Operating Temperature		-40 to 85° C (industrial)
Antenna	Connector Options		RPSMA (reverse polarity SMA) or MMCX
	Impedance		50 ohms unbalanced
Certifications (partial list)	FCC Part 15.247		OUR-9XTEND
	Industry Canada (IC)		4214A-9XTEND

Power Requirements (relative to each Transmit Power Output option)					
Transmit Power Output	1 mW	10 mW	100 mW	500 mW *	1 W *
Supply Voltage	2.8 - 5.5 VDC			3.0 - 5.5 VDC	4.75 - 5.5 VDC
Transmit Current (5 V) typical	110 mA	140 mA	270 mA	500 mA	730 mA
Transmit Current (3.3 V) typical	90 mA	110 mA	260 mA	600 mA	**

Specifications are subject to change without notice.

* If the supply voltage is lower than the minimum supply voltage requirement, the TX Power Output will decrease to the highest power level setting given the current supply voltage.

** 1W Power Output is not supported when using a 3.3 supply voltage

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