



Embedded Wireless for Every Thing™

XBee[™]/ XBee-PRO[™]

OEM RF Module





ZigBee™ / 802.15.4 OEM RF Modules

	XBee / XBee-PRO
Indoor/Urban Range:	100'(30 m) / 300'(100 m)
Outdoor Line-of-sight Range:	300′ (100 m) / 1 mile (1.6 km)
Transmit Power Output:	1 mW (0 dBm) / 100 mW (20 dBm) EIRP
Receiver Sensitivity:	-92 dBm / -100 dBm
Operating Frequency:	2.4 GHz / 2.4 GHz
RF Data Rate:	250000 bps / 250000 bps

XBee / XBee-PRO Pin Signals

Pin #	Description
1	Power Supply (2.8 - 3.4 V)
2	Data Out
3	Data In / Configuration
4	Digital Output 8*
5	Module Reset
б	PWM Output 0 / RSSI
7	Do Not Connect
8	Do Not Connect
9	Pin Sleep Control Line / Digital Input 8
10	Ground
11	Analog Input 4* / Digital I/O 4*
12	Clear-to-Send Flow Indicator / Digital I/O 7*
13	Module Status Indicator
14	Voltage Reference for A/D Inputs*
15	Associated Indicator / Analog Input 5* / Digital I/O 5*
16	Request-to-Send Flow Control / Digital I/O 6*
17	Analog Input 3* / Digital I/O 3*
18	Analog Input 2* / Digital I/O 2*
19	Analog Input 1* / Digital I/O 1*
20	Analog Input 0* / Digital I/O 0*

*Functions not supported as of firmware version 1.x82 Refer to the product manual for more information regarding pin functions

Performance		Power Requirements			General			
	XBee	XBee-PRO		XBee	XBee-PRO		XBee	XBee-PRO
Indoor/Urban Range	Up to 100 ft. (30 m)	Up to 300 ft. (100 m)	Supply Voltage	2.8 - 3.4 V	2.8 - 3.4 V	Frequency	ISM 2.4 GHz	ISM 2.4 GHz
Outdoor RF Line- of-sight Range	Up to 300 ft. (100 m)	Up to 1 mile (1.6 km)	Operating Current (Transmit)	45 mA @ 3.3 V	215 mA @ 3.3 V	Module Dimensions	0.960" x 1.087" (2.438 cm x 2.761 cm)	0.960" x 1.297" (2.438 cm x 3.294 cm)
Transmit Power Output	1 mW (0 dBm)	60 mW (18 dBm)*, 100 mW EIRP*	Operating Current (Receive)	50 mA @ 3.3 V	55 mA @ 3.3 V	Operating Temperature	Operating Temperature Industrial (-40 to 85 (
Receiver Sensitivity @ 80000 bps	-92 dBm	-100 dBm	Power-down Current	< 10 µA	< 10 µA	Antenna Options	U.FL connector, chip antenn integrated whip antenna	

Stand-alone RF Modem



ZigBee[™] / 802.15.4 Radio Modems

Networ	king and Security	Agency Approvals			
	XBee XBee-PRO		XBee	XBee-PRO	
Network Topologies	Peer-to-peer, Point-to-point, Point-to-multipoint & Mesh	FCC Part 15.247	OUR-XBEE	OUR- XBEEPRO	
Channels	16 direct sequence channels (XB 12 channels (XBee-PRO)	e) Industry Canada (IC)	4214A-XBEE	4214A- XBEEPRO	
Addressing Options	Addressing PAN ID, channel & Options addresses		ETSI	ETSI	

* When operating in Europe: XBee-PRO Modules must be configured to operate at a maximum TX power output level of 10 dBm (power output level is set using the PL command). Additionally, European regulations stipulate an EIRP power maximum of 12.86 dBm (19 mW).

Be the first to

offer a ZigBee[™] solution.

Call Today!

9XTend[™]

OEM RF Module



High Performance 1 Watt, 900 MHz OEM RF Modules

Indoor/Urban Range:	3000' (900 m)	XTer	nd Pin Signals
		Pin #	Description
Outdoor Line of sight Dange	40 miles (64 km)	1	Ground
Outdoor Line-of-sight Range:	40 miles (64 km)	2	Power: 2.8 - 5.5 VDC
		3	General Purpose Output 2 / Receive LED
T NR OIL		4	Transmit Power
Transmit Power Output:	T mw - T w (software selectable)	5	Data In
	Up to 4 Watts EIRP w/6 dB antenna	6	Data Out
		7	Shutdown
Throughput Data Rate:	9600 or 115200 bps (software selectable)	8	General Purpose Input 2 / Sleep
			General Purpose Output / Clear-to-Send Flow Control / RS-485 Transmit Enable
Encryption:	256-bit AES Encryption	10	General Purpose Input 1 / Request-to-Send / Command
Receiver Sensitivity:	-110 dBm (@ 9600 hps)	11	Configuration / Receive Signal Strength Indicator
necerver benshirity.	110 dbiii (@ 5000 bp3)		[reserved - do not connect]
Operating Frequency:	900 MHz	Refer t regard	o the product manual for more information ling pin functions

Performance		Power Rec	quirements	General		
	Indoor/Urban Range	Up to 3000 ft. (900 m) @ 9600 bps	Supply Voltage	2.8 - 5.5 VDC regulated	Frequency	ISM 900 MHz
	Outdoor RF Line-of-sight Range	Up to 40 miles (64 km) @ 9600 bps	Operating Current (Transmit)	Up to 730 mA (@ 5 V, 1 W)	Module Dimensions	1.44″ x 2.38″ x 0.20″ 3.65 cm x 6.05 cm x 0.51 cm
	Transmit Power Output	Variable up to 1 Watt (30 dBm)	Operating Current (Receive)	80 mA	Operating Temperature	Industrial or tested industrial (-40 to 85 C)
	Receiver Sensitivity @ 9600 bps	-110 dBm	Power-down Current	1 uA (Shutdown)	Antenna Connector Options	RPSMA or MMCX
	Receiver Sensitivity @ 115200 bps	-100 dBm				

9XTend[™]



Also Available - Class I, Division 2 certified 1 Watt, 900 MHz Radio Modems

Networking	and Security	Agency Approvals			
Network Topologies	Peer-to-peer, Point-to-point, Point-to-multipoint, Repeater & Mesh (coming soon)	FCC Part 15.247	OUR-9XTEND		
Number of Channels	10 hop sequences share 50 frequencies	Industry Canada (IC)	4214A-9XTEND		
Addressing Options	Vendor ID, channel & addresses				
Encryption	AES 256-bit				

Call today for:

- Free RF consultation
- Volume discounts
- Development kit pricing

XStream[™]

OEM RF Module



Versatile 900 MHz & 2.4 GHz OEM RF Modules

	9XStream / 24XStream	XStre	eam Pin Signals
Indoor/Urban Range:	1500' (450 m) / 600' (180 m)	Pin #	Description
			Data Output 2 / Clear-to-Send Flow Control / RS-485 Transmit Enable
Outdoor Line-of-sight Range:	20 miles (32 km) / 10 miles (16 km)	2	Data Input 3 / Sleep
			Data Out
		4	Data In
		5	Data Input 2 / Request-to-Send / Command
Transmit Power Output:	100 mW (20 dBm) / 50 mW (17 dBm)		Reset
		7	Data Output 3 / Receive LED
		8	Transmit / Power
Pacaivar Sansitivity:	-110 dBm (@ 9600 bps) / -105 dBm	9	Configuration
Receiver Sensitivity.	(@ 9600 bps) / -105 dbm (@ 9600 bps)		Power: 4.75 to 5.25 VDC regulated
			Ground
Operating Frequency:	900 MHz / 2.4 GHz	Refer t regard	o the product manual for more information ing pin functions

Throughput Data Rate:

9600 or 19200 bps / 9600 or 19200 bps

Performance			Power Requirements			General		
	9XStream	24XStream		9XStream	24XStream		9XStream	24XStream
Indoor/Urban Range	Up to 1500 ft. (450 m)	Up to 600 ft. (180 m)	Supply Voltage	4.75 - 5.25 VI	DC regulated	Frequency	ISM 900 MHz	ISM 2.4 GHz
Outdoor RF Line- of-sight Range	Up to 20 miles (32 km)	Up to 10 miles (16 km)	Operating Cur- rent (Transmit)	150 mA	150 mA	Module Dimensions	1.600″ x 2.8 (4.06 cm x 7.18	25″ x 0.350″ cm x 0.89 cm)
Transmit Power Output	100 mW (20 dBm)	50 mW (17 dBm)	Receive / Idle Current	50 mA	50 mA	Operating Temperature	Commercial (0 to or tested indust	70 C), industrial rial (-40 to 85 C)
Throughput Data Rate	9600 bps 19200 bps	9600 bps 19200 bps	Power-down Current	< 26 uA		Antenna Options	RPSMA, MMCX or integrated whip antenna	
Receiver	-110 dBm (@ 9600)	-105 dBm (@ 9600)						
Sensitivity	-107 dBm (@ 19200)	-102 dBm (@ 19200)						

Stand-alone RF Modem



Versatile 900 MHz & 2.4 GHz Radio Modems

Networ	king and Security	Agency Approvals			
	9XStream 24XStream		9XStream	24XStream	
Network Topologies	Peer-to-peer, Point-to-point, Point-to-multipoint & Repeater	FCC Part 15.247	OUR9XSTREAM	OUR- 24XSTREAM	
Channels	7 hop sequences share 25 frequencies	Industry Canada (IC)	4214A- 9XSTREAM	4214A-12008	
Addressing Options	Vendor ID, channel & addresses	Europe	-	ETSI	

Development kits include everything you need to set up a wireless connection in minutes.

Detailed Product Comparison

	XBee ZigBee™ (2.4 GHz) OEM RF Module	XBee-PRO ZigBee™ (2.4 GHz) OEM RF Module				
Performance						
Transmit Power Output	1 mW (0 dBm)	60 mW (18 dBm), 100 mW (20 dBm) EIRP				
Indoor/Urban Range	up to 100 ft. (30 m)	up to 300 ft. (100 m)				
Outdoor RF Line-of-sight Range	up to 300 ft. (100 m)	up to 1 mile (1.6 km)				
Outdoor RF Line-of-sight Range (w/ high gain antenna)	-	-				
Serial Interface Data Rate (software selectable)	1200 - 1152 (non-standard baud ra	200 bps tes also supported)				
Throughput Data Rate	80000	ops				
RF Data Rate	250000	bps				
Receiver Sensitivity	-92 dBm (1% packet error rate)	-100 dBm (1% packet error rate)				
General						
Serial Data Interface	CMOS UART no configuratic	interface, n required				
Frequency Band	ISM 2.4000 - 2	.4835 GHz				
Module Frequency Range	2.405 - 2.40	80 GHz				
Channels (software selectable)	16 direct sequence channels	12 direct sequence channels				
Spread Spectrum Type	DSSS (Direct Sequence Spread Spectrum)					
Modulation	QPSK (Quadrature Phase-Shift Keying)					
Networking & Security	rking & Security					
Encryption	AES 128-bit					
Supported Network Types	Point-to-point, Point-to-multipoint, Peer-to-peer & Mesh					
Error Handling	Retries & acknowledgements, CRC					
Addressing	2 ⁶⁴ addresses (64-bit)	on each channel				
Addressing Options	PAN ID, channel	& addresses				
Power Requirements						
Supply Voltage	2.8 – 3.4 VDC	regulated				
Operating Current (Transmit)	45 mA (@ 3.3 V)	215 mA (@ 3.3 V, 60 mW transmit power output)				
Operating Current (Receive / Idle)	50 mA (@ 3.3 V)	55 mA (@ 3.3 V)				
Shutdown Current	n/a	n/a				
Cyclic Sleep Current (when Sleeping)	< 50 μA (@	9 3.0 V)				
Pin Sleep Current	< 10 µA (@	9 3.0 V)				
Mechanical Properties						
Dimensions	0.960" x 1.087" (2.438 cm x 2.761 cm)	0.960" x 1.297" (2.438 cm x 3.294 cm)				
Weight						
Antenna Connector Options	U.FL connector, chip antenna c	or integrated whip antenna				
Operation Temperature	Industrial (-4	0 to 85 C)				
Government Agency Certifications						
FCC (United States)	OUR-XBEE	OUR-XBEEPRO				
IC (Canada)	4214A-XBEE	4214A-XBEEPRO				
Europe	ETSI	ETSI (max. 10 mW TX power output)				
Class I, Division 2 Compliant	Available	Available				
RoHS	Available	Available				

9XTend (900 MHz) OEM RF Module		9XStream (900 MHz) OEM RF Module		24XStream (2.4 GHz) OEM RF Module		9XCite (900 MHz) OEM RF Module		
1 Watt	(30 dBm)	100 mW (20 dBm)		50 mW (17 dBm)		4 mW (6 dBm)		
up to 300	0 ft. (900 m)	up to 1500) ft. (450 m)	up to 600 ft	. (180 m)	up to 300	ft. (90 m)	
up to 14 n	niles (22 km)	up to 7 m	les (11 km)	up to 3 mile	es (5 km)	up to 1000	ft. (300 m)	
up to 40 n @ 9600 bps thro	up to 40 miles (64 km) @ 9600 bps throughput data rate up to 20 miles (32 km) up to 10 miles (16 km)			es (16 km)	-			
1200 - 2 (non-standard baud	30400 bps I rates also supported)		1200 - 5 (non-standard baud	7600 bps rates also supported)		1200 - 57	600 bps	
9600 bps	115200 bps	9600 bps	19200 bps	9600 bps	19200 bps	9600 bps	38400 bps	
10000 bps	125000 bps	10000 bps	20000 bps	10000 bps	20000 bps	10000 bps	41666 bps	
-110 dBm	-100 dBm	-110 dBm	-107 dBm	-105 dBm	-102 dBm	-108 dBm	-104 dBm	
TTL UAR no configur	T interface, ation required		CMOS UAR no configura	T interface, tion required		CMOS UAR no configurat	l interface, ion required	
ISM 902	- 928 MHz	ISM 902	- 928 MHz	ISM 2.4000 - 2	2.4835 GHz	ISM 902 -	928 MHz	
905 - 9	925 MHz	910 - 9	17 MHz	2.45 - 2.4	6 GHz	910 - 91	7 MHz	
10 hop sequences	share 50 frequencies		7 hop sequences sl	nare 25 frequencies		7 hop sequ 25 single frequ	uences or ency channels	
	FHSS (Frequency Hopping Spread Spectrum)							
Direct FM modulator, FSK (Frequency Shift Keying)								
AES	256-bit			n/a	1			
	Poir	nt-to-point, Point-to-	multipoint, Peer-to-p	eer & Repeater (XTend	& XStream only)			
Retries & acknowledgements, Multiple transmissions, CRC			Retries and acknowledgements, CRC			CR	c	
			65535 addresses on	each channel				
			Vendor ID, channel	& addresses				
2.80 - 5.50	/DC regulated		4.75 - 5.25 VI	DC regulated		2.85 to 5.50 VI	DC regulated	
90 mA (3.30 V, 1 mV 730 mA	/), 110 mA (5 V, 1 mW), (5 V, 1 W)		150 mA	(@ 5 V)		55 mA (@ 2.85 V)		
80 mA	A (@ 5 V)		50 mA	(@ 5 V)		45 mA (@ 2.85 V),	55 mA (@ 5.00 V)	
5 μΑ	typical		n,	/a		n/	a	
< 1.	.6 mA		< 76 µA	(@ 5.0 V)		< 76	μΑ	
< 14	47 µA		< 26 µA	(@ 5.0 V)		< 20	μA	
1.44" x 2 (3.65 cm x 6.0	.38" x 0.20" 15 cm x 0.51 cm)			1.600″ x 2.82 (4.06 cm x 7.18	5″ x 0.350″ cm x 0.89 cm)			
0.64 c	oz. (18 g)			0.8 oz. (24 g)			
RPSMA	or MMCX		RPSMA, MMCX or inte	grated whip antenna		RPSMA or integrat	ed whip antenna	
Industrial or tested	industrial (-40 to 85 C)	Commercia	l (0 to 70 C), industria	l or tested industrial (40 to 85 C)	Commercial (0 to 2 (-40 to	70 C) or industrial 85 C)	
OUR-	9XTEND	OUR9X	STREAM	OUR-24XS	TREAM	OUR-9	XCITE	
4214A	-9XTEND	4214A-9	XSTREAM	4214A 1	2008	4214A-	9XCITE	
	-		-	ETS	1	-		
Ava	ilable	Avai	lable	Availa	ble	Avail	able	
Ju	ly 06	Jul	y 06	July	06	July	July 06	

9XCite[™]

OEM RF Module



Low Cost, Low Power 900 MHz OEM RF Modules

Indoor/Urban Range:	300' (90 m)
Outdoor Line-of-sight Range:	1000' (300 m)
Transmit Power Output:	4 mW (6 dBm)
Throughput Data Rate:	9600 or 38400 bps
Operating Frequency:	900 MHz
Receiver Sensitivity:	-108 dBm (@ 9600 bps)

9XCite Pin Signals

Pin #	Description
1	Data Output 2 / Clear-to-Send Flow Control
2	Data Input 3 / Sleep
3	Data Out
4	Data In
5	Data Input 2 / Request-to-Send
6	Reset
7	Data Output 3 / Receive LED
8	Transmit / Power
9	Configuration
10	Power: 2.85 – 5.50 VDC
11	Ground

Refer to the product manual for more information regarding pin functions

Performance		Power Requirements		General		
	Indoor/Urban Range	Up to 300 ft. (90 m)	Supply Voltage	2.85 - 5.50 VDC regulated	Frequency	ISM 900 MHz
	Outdoor RF Line-of-sight Range	Up to 1000 ft. (300 m)	Operating Current (Transmit)	55 mA	Module Dimensions	1.600" x 2.825" x 0.350" 4.06 cm x 7.18 cm x 0.89 cm
ſ	Transmit Power Output	4 mW (6 dBm)	Operating Current (Receive)	45 mA	Operating Temperature	Commercial (0 to 70 C) or industrial (-40 to 85 C)
	Receiver Sensitivity @ 9600 bps	-108 dBm	Power-down Current	< 20 uA	Antenna Options	RPSMA or integrated whip antenna
	Receiver Sensitivity @ 38400 bps	-104 dBm			-	· · · · · · · · · · · · · · · · · · ·



Low Cost, Low Power 900 MHz Radio Modems

Networking and Security		Agency Approvals		
Network Topologies	Peer-to-peer, Point-to-point, & Point-to-multipoint	FCC Part 15.247	OUR-9XCITE	
Channels	7 hop sequences or 25 single freq. channels	Industry Canada (IC)	4214A-9XCITE	
Addressing Options	Vendor ID, channel & addresses	Europe	-	

Compatible with 900 MHz XStream RF modems and modules

XPress[™]

Ethernet Bridge



1.5 Mbps - Long Range 900 MHz Ethernet Bridge

Performance		Power Gene Requirements		General		Networl Sect	king and urity	Agency A	Approvals
Indoor/Urban Range	Up to 1000 ft. (300 m)	Supply Voltage	5 - 16 VDC	Frequency	ISM 900 MHz	Network Topologies	Matched Pair (Point-to-Point)	FCC Part 15.247	R4N-AW900M
Outdoor RF Line- of-sight Range	Up to 15 miles (24 km)	Operating Current (Transmit)	350 mA	Dimensions	Outdoor 3.13" x 6.25" x 2.25" Indoor 3.25" x 5.25" x 1.19"	Channels	12 direct sequence channels	Industry Canada (IC)	Pending
Transmit Power Output	125 mW (21 dBm)			Operating Temperature	-40 to 70 C	Encryption	128-bit	Europe	-
RF Data Rate	1.5 Mbps			Antenna Options	RPTNC (Female)				
Receiver Sensitivity	-97 dBm @ 10e-4 BER					-			

XBee XTender[™]

The XBee XTender RF Bridge was engineered to extend the reach of your XBee/XBee-PRO networks.

Supply Voltage: 7-28 VDC

Operating Current (Transmit): 1.2 A

Operating Current (Receive):



200 mA

28.6 mm

Bridge XBee and 9XTend Networks

900 MHz XTend Network					
Indoor/Urban Range	Up to 3000 ft. (900 m) @ 9600 bps	Frequency	ISM 900 MHz		
Outdoor RF Line- of-sight Range	Up to 40 miles (64 km) @ 9600 bps	Network Topologies	Peer-to-peer, Point-to- point, Point-to-multi- point, Repeater & Mesh (coming soon)		
Transmit Power Output	Variable up to 1 Watt (30 dBm)	Number of Channels	10 hop sequences share 50 frequencies		
Receiver Sensitivity @ 9600 bps	-110 dBm	Encryption	AES 256-bit		
Receiver Sensitivity @ 115200 bps	-100 dBm	FCC Part 15.247	OUR-9XTEND		
Operating Temperature	Industrial (-40 to 85 C)	Industry Canada (IC)	4214A-9XTEND		
Antenna Options	RPSMA				

2.4 GHz XBee Network				
Indoor/Urban Range	Up to 300 ft. (100 m)	Frequency	ISM 2.4 GHz	
Outdoor RF Line- of-sight Range	Up to 1 mile (1.6 km)	Network Topologies	Peer-to-peer, Point-to- point, Point-to-multi- point, & Mesh	
Transmit Power Output	60 mW (18 dBm) 100 mW EIRP	Number of Channels	12 channels	
RF Data Rate	250000 bps	Addressing Options	PAN ID, channel & address	
Receiver Sensitivity @ 80000 bps	-100 dBm	FCC Part 15.247	OUR-XBEEPRO	
Operating Temperature	Industrial (-40 to 85 C)	Industry Canada (IC)	4214A-XBEEPRO	
Antenna Options	RPSMA			

Accessories



Antennas

Antenna Type (900 MHz)			
6" half wave	2.1 dBi, articulating, RPSMA connector		
7" half wave	2.1 dBi, non-articulating, RPSMA connector		
13″Yagi	8.1 dBi (6 dbd) directional w/ N-female connector		
25"Yagi	11.1 dBi (9 dBd) directional w/ N-female connector		
15" base station	2.1 dBi gain (0 dBd), fiberglass w/ N-female connector		
25" base station	5.1 dBi gain (3 dBd), fiberglass w/ N-female connector		
65" base station	8.1 dBi gain (6 dBd), fiberglass w/ N-female connector		
Antenna Type (2.4 GHz)			
6" half wave dipole	Omni-directional		
7" half wave	Bulkhead, MMCX connector, 6" pigtail		

Cables

(Available lengths: 1 ft. 4 ft. 6 ft. 10 ft. 20 ft.)

	Cable Type
LMR-195	Right-angle RPSMA male to N-male connector
LMR-195	Right-angle RPSMA male to RPSMA female connector



Power Supplies, Adapters and Cables				
Power supply	9 VDC 400 mA 2.1 mm/5 mm barrel jack, center positive			
Power supply	9 V 1.1A Intl Power Supply w/US Plug			
Adapter kit	UK, EU & AU to US			
6′ RS-232 cable	9 pin D-Sub straight through			
6' USB cable	Standard universal serial bus cable			

XBee, XBee-PRO specific accessories		
Antennas		
	Antenna Type	
5" half wave pigtail	2.1 dBi, articulated bulkhead mount, U.FL female	
4.5" half wave	2.1 dBi, articulated joint, RPSMA male	
Cables		
Cable Type		
RG-178	U.FL female to RPSMA female bulkhead	

DIN Rail Mounting Bracket

The DIN Rail Mounting Bracket Kit makes it simple to attach most MaxStream stand-alone RF modems to a standard DIN rail.

The bracket is compatible with the XTend, XStream and XCite stand-alone RF modems that feature RS-232/485, USB or Ethernet connections.

Kits include the mounting bracket, two rail clips and all the necessary connection hardware.

Development Kits

MaxStream development kits include the hardware and software needed to rapidly create and test long range wireless data links.

Sample Contents



Available Kits:

- XBee Professional Developer Kit
- XBee-PRO Starter Kit
- XBee Starter Kit
- 9XTend Development Kit
- 9XStream Development Kit (9600 bps)
- 9XStream Development Kit (19200 bps)
- 24XStream Development Kit (9600 bps)
- 24XStream Development Kit (19200 bps)
- 9XCite Development Kit (9600 bps)
- 9XCite Development Kit (38400 baud)



Order your development kit today to experience first-hand the best in wireless data communications and free unlimited support.



Call and order today!

Toll Free (866) 765-9885 International (801)765 9885 www.maxstream.net



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