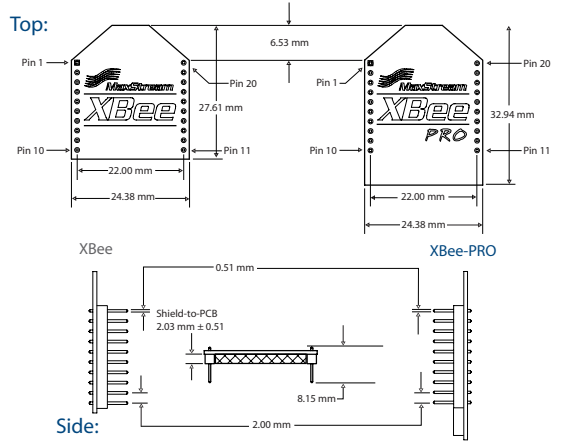
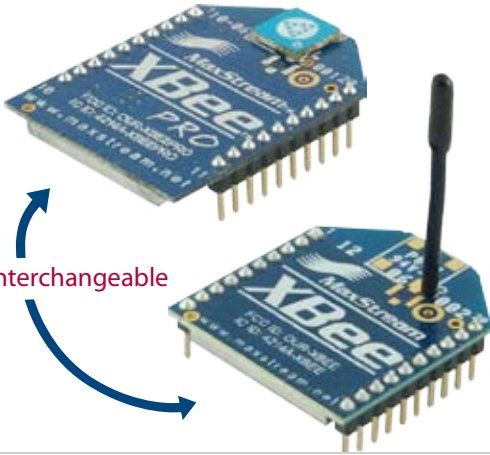


Embedded Wireless for Every Thing™

XBee™ / XBee-PRO™

OEM RF Module



ZigBee™ / 802.15.4 OEM RF Modules

XBee / XBee-PRO

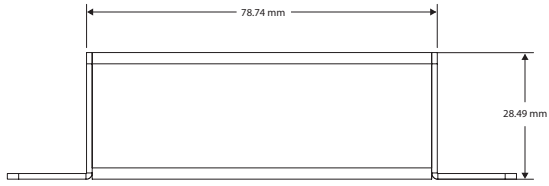
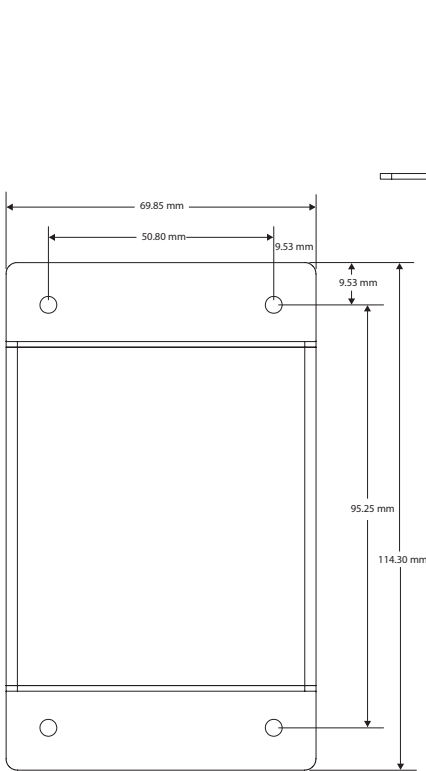
Indoor/Urban Range:	100' (30 m) / 300' (100 m)
Outdoor Line-of-sight Range:	300' (100 m) / 1 mile (1.6 km)
Transmit Power Output:	1 mW (0 dBm) / 100 mW (20 dBm) EIRP
Receiver Sensitivity:	-92 dBm / -100 dBm
Operating Frequency:	2.4 GHz / 2.4 GHz
RF Data Rate:	250000 bps / 250000 bps

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
6	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	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	Industrial (-40 to 85 C)	
Receiver Sensitivity @ 80000 bps	-92 dBm	-100 dBm	Power-down Current	< 10 µA	< 10 µA	Antenna Options	U.FL connector, chip antenna or integrated whip antenna	



Interface Options:



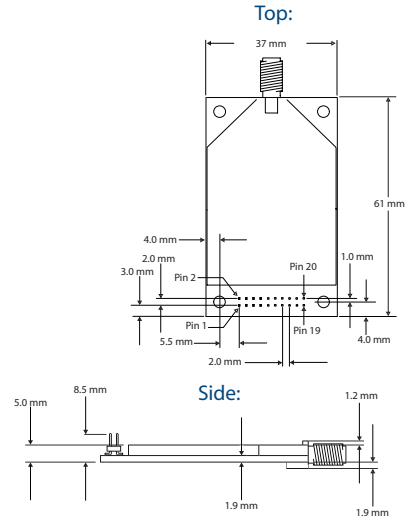
RS-232



USB

Networking 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
Channels	16 direct sequence channels (XBee)	12 channels (XBee-PRO)	Industry Canada (IC)	4214A-XBEE
Addressing Options	PAN ID, channel & addresses		Europe	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).



High Performance 1 Watt, 900 MHz OEM RF Modules

- Indoor/Urban Range: 3000' (900 m)
- Outdoor Line-of-sight Range: 40 miles (64 km)
- Transmit Power Output: 1 mW - 1 W (software selectable)
Up to 4 Watts EIRP w/6 dB antenna
- Throughput Data Rate: 9600 or 115200 bps (software selectable)
- Encryption: 256-bit AES Encryption
- Receiver Sensitivity: -110 dBm (@ 9600 bps)
- Operating Frequency: 900 MHz

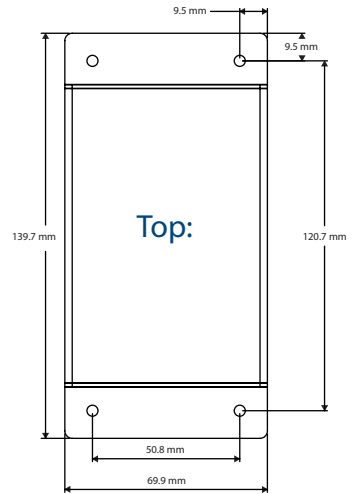
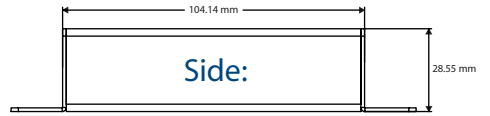
XTend Pin Signals

Pin #	Description
1	Ground
2	Power: 2.8 - 5.5 VDC
3	General Purpose Output 2 / Receive LED
4	Transmit Power
5	Data In
6	Data Out
7	Shutdown
8	General Purpose Input 2 / Sleep
9	General Purpose Output / Clear-to-Send Flow Control / RS-485 Transmit Enable
10	General Purpose Input 1 / Request-to-Send / Command
11	Configuration / Receive Signal Strength Indicator
12-20	[reserved - do not connect]

Refer to the product manual for more information regarding pin functions

Performance		Power Requirements		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				

Weatherproof (NEMA-4 Rated)
Stand-alone RF Modems



Interface Options:

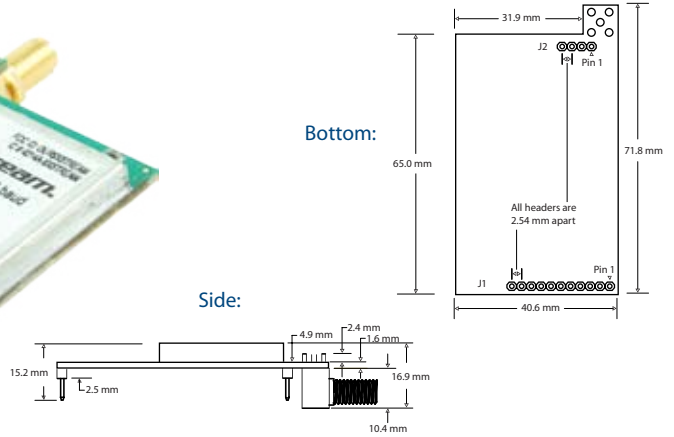


Also Available - Class I, Division 2 certified 1 Watt, 900 MHz Radio Modems

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



Versatile 900 MHz & 2.4 GHz OEM RF Modules

9XStream / 24XStream

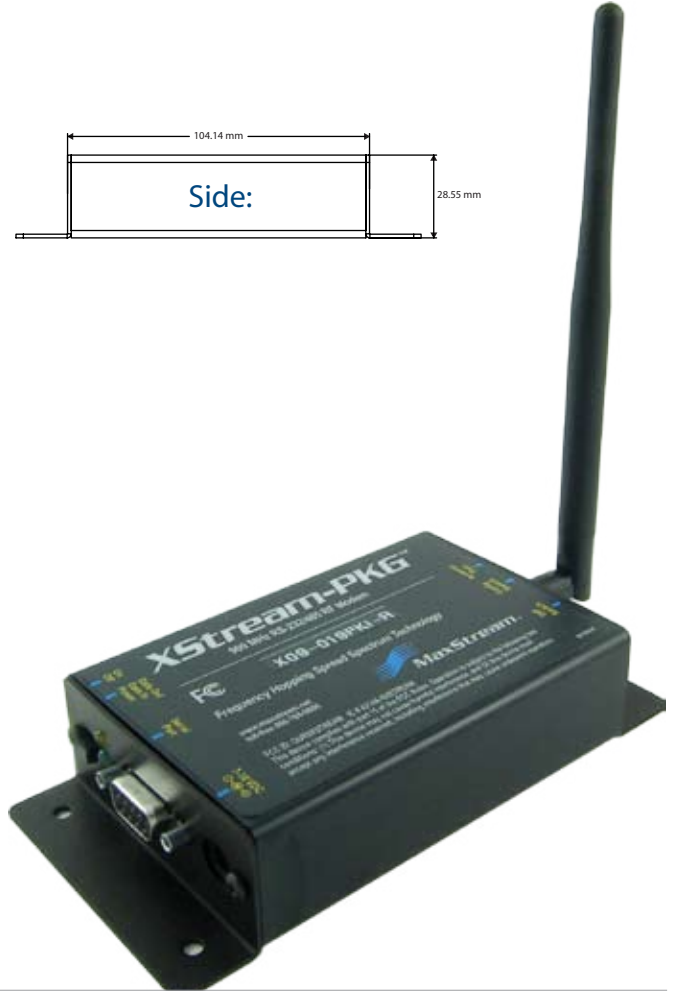
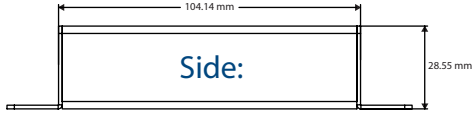
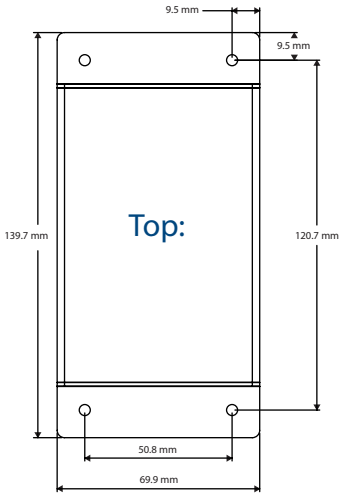
- Indoor/Urban Range:** 1500' (450 m) / 600' (180 m)
- Outdoor Line-of-sight Range:** 20 miles (32 km) / 10 miles (16 km)
- Transmit Power Output:** 100 mW (20 dBm) / 50 mW (17 dBm)
- Receiver Sensitivity:** -110 dBm (@ 9600 bps) / -105 dBm (@ 9600 bps)
- Operating Frequency:** 900 MHz / 2.4 GHz
- Throughput Data Rate:** 9600 or 19200 bps / 9600 or 19200 bps

XStream Pin Signals

Pin #	Description
1	Data Output 2 / Clear-to-Send Flow Control / RS-485 Transmit Enable
2	Data Input 3 / Sleep
3	Data Out
4	Data In
5	Data Input 2 / Request-to-Send / Command
6	Reset
7	Data Output 3 / Receive LED
8	Transmit / Power
9	Configuration
10	Power: 4.75 to 5.25 VDC regulated
11	Ground

Refer to the product manual for more information regarding pin functions

	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 VDC 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 Current (Transmit)	150 mA	150 mA	Module Dimensions	1.600" x 2.825" x 0.350" (4.06 cm x 7.18 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 70 C), industrial or tested industrial (-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 Sensitivity	-110 dBm (@ 9600) -107 dBm (@ 19200)	-105 dBm (@ 9600) -102 dBm (@ 19200)						



Interface Options:



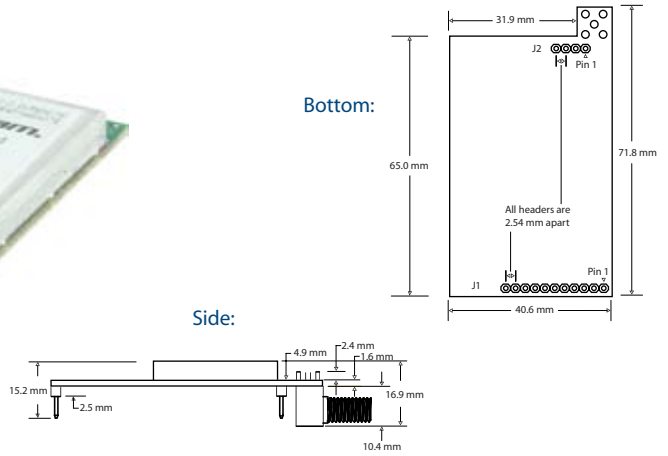
	Networking and Security		Agency Approvals	
	9XStream	24XStream	9XStream	24XStream
Network Topologies	Peer-to-peer, Point-to-point, Point-to-multipoint & Repeater		FCC Part 15.247	OUR-24XSTREAM
Channels	7 hop sequences share 25 frequencies		Industry Canada (IC)	4214A-9XSTREAM / 4214A-12008
Addressing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

Detailed Product Comparison

Sold by AA Electric 1-800-237-8274 Lakeland, FL • Lawrenceville, GA • Greensboro, NC • East Rutherford, NJ www.AAelectric.com

	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 - 115200 bps (non-standard baud rates also supported)	
Throughput Data Rate	80000 bps	
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 interface, no configuration required	
Frequency Band	ISM 2.4000 - 2.4835 GHz	
Module Frequency Range	2.405 - 2.480 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		
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 (@ 3.0 V)	
Pin Sleep Current	< 10 µA (@ 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 or integrated whip antenna	
Operation Temperature	Industrial (-40 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 3000 ft. (900 m)		up to 1500 ft. (450 m)		up to 600 ft. (180 m)		up to 300 ft. (90 m)	
up to 14 miles (22 km)		up to 7 miles (11 km)		up to 3 miles (5 km)		up to 1000 ft. (300 m)	
up to 40 miles (64 km) @ 9600 bps throughput data rate		up to 20 miles (32 km)		up to 10 miles (16 km)		-	
1200 - 230400 bps (non-standard baud rates also supported)		1200 - 57600 bps (non-standard baud rates also supported)				1200 - 57600 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 UART interface, no configuration required		CMOS UART interface, no configuration required				CMOS UART interface, no configuration required	
ISM 902 - 928 MHz		ISM 902 - 928 MHz		ISM 2.4000 - 2.4835 GHz		ISM 902 - 928 MHz	
905 - 925 MHz		910 - 917 MHz		2.45 - 2.46 GHz		910 - 917 MHz	
10 hop sequences share 50 frequencies		7 hop sequences share 25 frequencies				7 hop sequences or 25 single frequency channels	
FHSS (Frequency Hopping Spread Spectrum)							
Direct FM modulator, FSK (Frequency Shift Keying)							
AES 256-bit		n/a					
Point-to-point, Point-to-multipoint, Peer-to-peer & Repeater (XTend & XStream only)							
Retries & acknowledgements, Multiple transmissions, CRC		Retries and acknowledgements, CRC				CRC	
65535 addresses on each channel							
Vendor ID, channel & addresses							
2.80 – 5.50 VDC regulated		4.75 - 5.25 VDC regulated				2.85 to 5.50 VDC regulated	
90 mA (3.30 V, 1 mW), 110 mA (5 V, 1 mW), 730 mA (5 V, 1 W)		150 mA (@ 5 V)				55 mA (@ 2.85 V)	
80 mA (@ 5 V)		50 mA (@ 5 V)				45 mA (@ 2.85 V), 55 mA (@ 5.00 V)	
5 µA typical		n/a				n/a	
< 1.6 mA		< 76 µA (@ 5.0 V)				< 76 µA	
< 147 µA		< 26 µA (@ 5.0 V)				< 20 µA	
1.44" x 2.38" x 0.20" (3.65 cm x 6.05 cm x 0.51 cm)		1.600" x 2.825" x 0.350" (4.06 cm x 7.18 cm x 0.89 cm)					
0.64 oz. (18 g)		0.8 oz. (24 g)					
RPSMA or MMCX		RPSMA, MMCX or integrated whip antenna				RPSMA or integrated whip antenna	
Industrial or tested industrial (-40 to 85 C)		Commercial (0 to 70 C), industrial or tested industrial (-40 to 85 C)				Commercial (0 to 70 C) or industrial (-40 to 85 C)	
OUR-9XTEND		OUR9XSTREAM		OUR-24XSTREAM		OUR-9XCITE	
4214A-9XTEND		4214A-9XSTREAM		4214A 12008		4214A-9XCITE	
-		-		ETSI		-	
Available		Available		Available		Available	
July 06		July 06		July 06		July 06	



Low Cost, Low Power 900 MHz OEM RF Modules

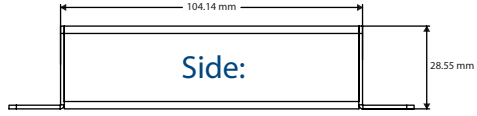
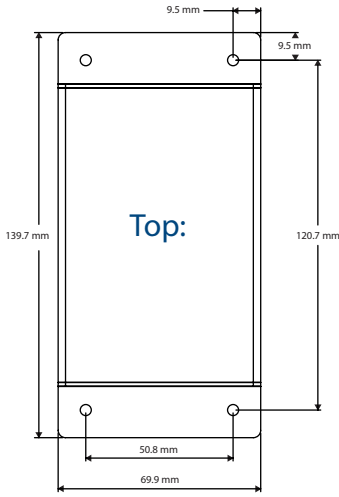
- Indoor/Urban Range: 300' (90 m)
- Outdoor Line-of-sight Range: 1000' (300 m)
- Transmit Power Output: 4 mW (6 dBm)
- Throughput Data Rate: 9600 or 38400 bps
- Operating Frequency: 900 MHz
- Receiver Sensitivity: -108 dBm (@ 9600 bps)

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
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				



Interface Options:

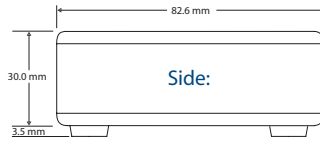
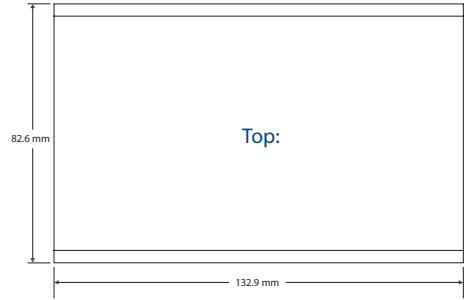


Networking and Security		Agency Approvals	
Network Topologies	Peer-to-peer, Point-to-point, & Point-to-multipoint	FCC Part 15.247	OUR-9XCITE
Channels	7 hop sequences or 25 single freq. channels	Industry Canada (IC)	4214A-9XCITE
Addressing Options	Vendor ID, channel & addresses	Europe	-

XPress™

Ethernet Bridge

- Indoor/Urban Range: 1000' (300 m)
- Outdoor Line-of-sight Range: 15 miles (24 km)
- Transmit Power Output: 125 mW (21 dBm)
- Receiver Sensitivity: -97 dBm (@ 10e⁻⁴ BER)
- Encryption: 128-bit
- Throughput Data Rate: 935000 bps
- Operating Frequency: 900 MHz



Optional Antennas	
Yagi (10 dBi)	Directional w/10" RPTNC male connector & wall mounting bracket
Yagi (15 dBi)	Directional w/10" RPTNC male connector & wall mounting bracket



1.5 Mbps - Long Range 900 MHz Ethernet Bridge

Performance		Power Requirements		General		Networking and Security		Agency 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								

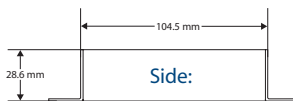
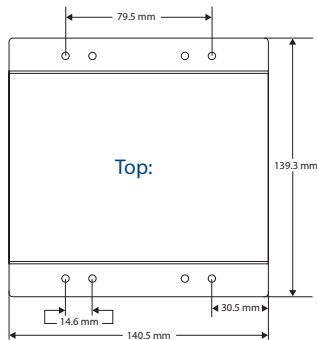
XBee XTender™

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

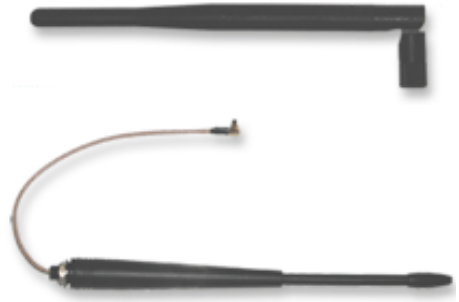
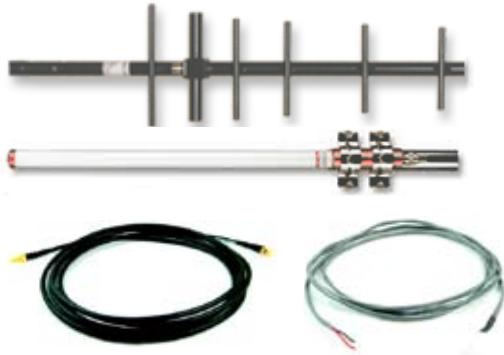


Bridge XBee and 9XTend Networks

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-multipoint, 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-multipoint, & 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	9V 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)



