XTend Module Migration Guide

Migration from XTend to XTend v.B or XBee-PRO XTC

As of November 2015, Digi has announced an EOL notice on our XTend product family, due to a critical component obsolescence (See Product Notice #151111 for more information). To accommodate our existing customers, we have created two over-the-air compatible replacement options;

- XTend v.B – A pin-compatible module in the same form-factor as the current XTend, which does not require a redesign for existing XTend hardware designs and is over-the-air compatible with XTend modules. Note there will be new part numbers and certification IDs (FCC ID, etc.) for these modules.
- XBee-PRO XTC – A new XBee-PRO Surface Mount module with 1-Watt output power that is over-the-air compatible with XTend modules. This allows customers to migrate to the SMT form factor, which is ideal for those interested in reducing the size of their design while maintaining OTA compatibility. Note there will be new part numbers and certification IDs for these modules.

This guide is intended for current XTend customers migrating from the XTend to one of the above mentioned replacement options. For new designs and installations, Digi recommends customers begin to migrate to the XBee SMT form factor to take advantage of the smaller footprint and add flexibility to their design. With this form factor, customers will have the option to upgrade to new and improved XBee SMT modules in the future.

Module Specification Comparison

Specifications of the XTend, XTend v.B, and XBee-PRO XTC

	XTend	XTend v.B	XBee-PRO XTC
PERFORMANCE			
INDOOR/URBAN RANGE	Up to 3000 feet (900 m) with 2.1 dB dipole antenna	no change	no change
OUTDOOR RF LINE-OF-SIGHT RANGE	Up to 40 miles (64 km) with high gain antenna	no change	no change
TRANSMIT POWER	1 mW - 1 W (0 - 30 dBm)	100mW - 1W (20 - 30 dBm)	100mW - 1W (20 - 30 dBm)
INTERFACE DATA RATE	1,200 - 230,400 bps	no change	no change
RECEIVER SENSITIVITY (1% PER)	-110 dBm (@9,600 bps throughput data rate), -100 dBm (@115,200 bps)	no change	no change
THROUGHPUT DATA RATE (SOFTWARE SELECTABLE)	9,600 or 115,200 bps	no change	no change

RF DATA RATE	10,000 bps (@9,600 bps throughput data rate), 125,000 bps (@115,200 bps)	no change	no change
ANTENNA OPTIONS	MMCX, RPSMA	no change	U.FL and RF Pad
NETWORKING AND SECURITY			
SPREAD SPECTRUM	FHSS	no change	no change
MODULATION	FSK	no change	no change
DATA INTERFACE	UART	no change	no change
SUPPORTED NETWORK TOPOLOGIES	Point-to-Point, Point-to-Multipoint, Repeater, Mesh	no change	no change
CHANNEL CAPACITY	10 hop sequences share 50 frequencies	no change	no change
ENCRYPTION	256-bit / 128-bit AES	no change	no change
POWER REQUIREMENTS			
SUPPLY VOLTAGE	2.8 – 5.5 VDC	2.8 – 5.5 VDC	2.6 - 3.6 VDC
RECEIVE CURRENT	80 mA	35 mA @ 5V	40 mA @ 3.3V
TRANSMIT CURRENT	See chart	See chart	See chart
SHUTDOWN MODE CURRENT	5 µA typical	1 µA typical	not supported
PIN SLEEP CURRENT	147 µA	< 147 µA	2.5 uA
CYCLIC SLEEP CURRENT	0.3 – 0.8 mA (16 sec cyclic sleep)	To be determined	To be determined
OPERATING TEMPERATURE	-40 to 85C	no change	no change
CERTIFICATIONS			
FCC ID (U.S. CERTIFICATION PART 15.247)	OUR-9XTEND	MCQ-XBPSX (pending)	MCQ-XBPSX (pending)
IC ID (CANADA)	4214A-9XTEND	1846A-XBPSX (pending)	1846A-XBPSX (pending)
C-TICK (AUSTRALIA)	Approved (XTH9)	changing to RCM	changing to RCM
RCM (AUSTRALIA)	-	Approval pending	Approval pending
Class 1 Div 2	Pre-tested (CSA)	Class 1 Div 2 Ready*	Class 1 Div 2 Ready*

*The module meets inductance and capacitance requirements for C1D2, but customers will need to complete C1D2 testing and certification on their finished product

Please note that even if one chooses the XTend v.B solution which is functionally equivalent, there are new regulatory body (FCC/IC, etc.) changes that will need to be addressed by the customer.

Transmit Current Comparison

Power Requirements Table	Xtend	Xtend v.B	XBee-PRO XTC	Xtend	Xtend v.B	XBee-PRO XTC	Xtend	Xtend v.B	XBee-PRO XTC
TRANSMIT POWER OUTPUT	100mW			500mW			1W		
SUPPLY VOLTAGE	2.8 to 5.5V	2.8 to 5.5V	2.6 to 3.6V	3.0 to 5.5V	3.2 to 5.5V	2.6 to 3.6V	4.75 to 5.5V	4.75 to 5.5V	2.6 to 3.6V*
TRANSMIT CURRENT (5V) TYPICAL	270 mA	250 mA	n/a	500 mA	470 mA	n/a	800 mA	710 mA	n/a
TRANSMIT CURRENT (3.3V) TYPICAL	260 mA	320 mA	330 mA	600 mA	615 mA	640 mA	n/a	n/a	900 mA
*On XBee-PRO XTC module, 30 dBm (1W) RF power is guaranteed at 3.3V and above. Power level will decrease at lower voltages.									
Note: 1mW and 10mW power modes are not supported on the Xtend v.B or XBee-PRO XTC									

Pin Compatibility

The XBee-PRO XTC modules offer the same basic functionality as the XTend, but they are in the XBee SMT form factor and have different pinouts. The below table shows how the XTend pins align with the new XTC pins.

CAUTION: XBee-PRO XTC modules operate from a 3.3V typical power supply. I/O pins are not 5V tolerant and must be interfaced with at the same voltage as the supply.

XTend/XTend v.B		XBee-PRO XTC	
Pin #	Function	Pin #	Function
1	GND	1	GND
2	VCC (5V typ.)	2	VCC (3.3V typ.)
3	GPO2/RX LED	5	GPO2/RX LED
4	nTX_PWR	28	nTX_PWR
5	DI	4	DI
6	DO	3	DO
7	nSHDN	N/A	see Note 1
8	GPI2/SLEEP (see Note 2)	10	GPI2/SLEEP (see Note 2)
9	GPO1/nCTS/RS-485 TX_EN	25	GPO1/nCTS/RS-485 TX_EN
10	GPI1/nRTS/CMD	29	GPI1/nRTS/CMD
11	nCONFIG/RSSI	32	nCONFIG (see Note 3)
		7	RSSI (see Notes 3, 4)
12	Reserved/Do not connect	N/A	N/A
13			
14			
15			
16			
17			
18			
19			
20			

Note 1: Shutdown feature not supported on XTC.
Note 2: Pin sleep mode is not available on DigiMesh firmware (this applies to XTend, XTend v.B, and XTC)
Note 3: nCONFIG (input) and RSSI (output) are separate pins on XTC.
Note 4: RSSI PWM amplitude is 2.8V on XTend/XTend v.B. On XTC, RSSI amplitude follows the supply voltage.

Additional Information

If you have concerns or questions about this notice please contact your Digi sales representative or our support department via telephone at 801-765-9885 or visit us online at http://www.digi.com/support/eservice/ to submit a request.