

Getting Started

Once you have the PIC-BEE module, what's the best way to get started? First you will need the XBee radio module of course, and a 5 to 12VDC power supply. Align the XBee module to the socket as shown in the picture, and carefully insert it, and make sure that the pins are seated completely into the socket. Next connect the power to the module. An on board regulator will provide the correct voltage to the XBee radio, but make sure that you connect the positive of the power supply to the "Vin" and the ground to the "gnd" connections on the terminal blocks.

This also assumes that you are somewhat familiar to the commands for the XBee module. If you are not, please download the current users document from Digi and read it.

The PIC-BEE module is designed to be the slave or controlled side of your application. This means of course that you also need a host side, such as a PC or embedded control that also has another XBee module. If you have a PC with a terminal program running, make sure you are connected to the XBee on your side by simply sending the command "+++" and then watch for the return transmission "OK". You can then disconnect or wait for it to time out.

Remember the XBee module can be configured for different networks, PAN IDs, addresses, etc for specific applications and may affect the initial operation. The best way to start out is make sure that both XBee modules are reset to factory defaults. For the host side, when you place it into command mode send the "ATRE" string. For the PIC-BEE module you can short out the RST jumper block and power it up. Then remove power after 5 seconds, and take off the shorting block. This will have then reset the XBee module that is installed in the PIC-BEE.

When you first power up the module, it will transmit to the host the following information:

```
.PIC-BEE V1.0  
[MY=0] [ID=3332] [DH=0] [DL=0]
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If you do not see this, then make sure the LED on the board is turned off. The LED will come on initially indicating it is configuring the XBee module with the stored parameters that are in the PIC-BEE memory. If the LED remains on, it is indicating that it could not communicate with the XBee, so make sure the XBee is plugged in correctly and it is not defective.

The data transmitted shows the defaults for the XBee installed. If this is modified for specific applications, then of course the data that is different will show up as such (and this is why you need to know the XBee configuration data).

Once you have a RF link established, you can do the most basic of all functions - turn on and off the LED on the board. This is done by sending from the host side the command

```
%L1
```

The LED should turn on and remain on until you send the command

```
%L0
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The LED should turn off. Congratulations you have now established and verified that you have a RF link between the two XBee devices!!!!

Now you can connect digital inputs, digital outputs and analog inputs to the PIC-BEE and begin to integrate it into your application.

Frequently Asked Questions

1. What do I use for the host side?

Answer: There are a number of ways to do this, but for experimenting with the module, or if you want to control it from your PC, the Digi/Maxstream development board that has a serial connection is the most straight forward. They also have a nice terminal program called X-CTU where you can send commands and watch the data returning.

2. Can I use the PIC-BEE as a host interface?

Answer: The PIC-BEE includes a place for a 4 position header that is connected directly to the XBee serial input and output. Presently the software in the PICBEE does not support this feature but it will in the near future. You will also need to have externally to the PIC-BEE a conversion circuit to change from digital logic to RS232 levels.

3. I used to be able to communicate with the PIC-BEE but I changed something. How do I get it back?

Answer: There are two jumper blocks on the PIC-BEE with one labeled 'RST'. Shorting this block when powering it up will reset to default values - baud rate of 9600, MY=0, ID=3332, DH and DL set to 0. This is the reset values for the XBee module.

4. How can I use a relay with the PIC-BEE ?

Answer: First you need to configure an I/O on PORTB to be an output. You will also need to add some additional circuitry in order to turn on and off the relay. This typically consists of a resistor, NPN transistor and diode as well as the relay. There are numerous examples on the web for doing this. You may contact technical support if you have difficulty in locating one.

5. What is the range for the analog input?

Answer: The power supply on board is used for the reference voltage, and that is 3.3VDC. So the expected range is 0 to that reference voltage.

6. I was trying to write my own code for the PIC-BEE, and now nothing works. What do I do?

Answer: Contact technical support, and we can email you the current released HEX file for the PIC-BEE.

7. Is the source code for the PIC-BEE available?

Answer: No. However we can provide engineering support for specific applications. Contact sales for additional details.