

# SkyeTek M1 Troubleshooting Guide

## Problem:

I can't communicate with the reader using SkyWare (SkyWare responds with "No SkyeRead Device Detected") via RS-232 or USB.

## Solution:

1. The reader is improperly connected either (See connection tutorial at the end of this document).
2. A com port is in use by some other application or improperly closed. Do an alt-ctrl-del and see if a previous version of SkyWare is still running. If not, restart the computer to make sure all com ports are closed and ready to use.
3. If a firmware upgrade was recently performed from any version prior to 001C to 001C or above, the reader ID of the reader may have been set to something other than 0xFF. In firmware version 001C or above, the reader will function exactly as before if the reader ID value is 0xFF. If the reader value is anything other than 0xFF, the reader will only respond to commands having the specific reader ID value programmed into its memory.

In order to change the reader ID to 0xFF:

1. Connect the reader and open a terminal program.
2. Select the correct terminal settings, default baud rate is 9600. Settings are no parity bit, 8 data bits, 1 stop bit.
3. Send the following command with the reader connected.

```
<CR>A041FF0201FF2C6E<CR>
```

4. The reader should respond with the following string:

```
<LF>41538D<CR><LF>
```

5. Power cycle the reader.

After a power cycle, SkyWare should detect the SkyeTek reader.

**Problem:**

I am unable to communicate with the reader via a terminal program or via code I am writing but the reader is detected by SkyWare.

**Solution:**

1. The com port is in use by some other application or was not closed completely because of an irregular exit condition in SkyWare. Do an alt-ctrl-del and see if a previous version of SkyWare is still running. If not, restart the computer to make sure all com ports are closed and ready to use.
2. Com port was not initialized correctly. Make sure your terminal settings are correct. The correct settings should be 8 data bits, 1 stop bit, no parity bit. Default baud rate is 9600, but can be 19200, 38400, or 57600.

**Problem:**

I'm unable to read from or write to a tag with SkyWare.

**Solution:**

1. Make sure the tag is in the field of the reader using the Get Tag ID command. If the internal antenna is used, make sure the tag is within 2 or 3 inches with a credit card sized tag or 1.5 to 2 inches for a wrist band sized tag. If the external antenna is being used make sure the tag is within 6-8 inches with a credit card sized tag. Tag should be within 3-5 inches of the external antenna for a wrist band sized tag. For smaller tags, the tag should be closer to the antenna. If SkyWare is unable to get a tag ID the tag is not in the field of the reader or not supported.
2. Make sure the tag is parallel to the antenna and in the field of the reader. This can be checked with a get tag ID command.
3. Make sure the tag is supported by our reader. Supported tag types and their standards can be found at the bottom of SkyWare. Make sure reads and writes are supported by our reader. Current supported tags for reads and writes are ISO15693, Tag-it HF, and I-Code1 tags.
4. The specific blocks you are trying to write to are locked. There is no way to tell if blocks on the tag are locked unless you try to write to a block and it fails while writing to another block passes. It is also not possible to unlock blocks once they are locked.

**Problem:**

I'm unable to read from or write to a tag when sending a command manually in SkyeTek protocol command builder or through a terminal program.

**Solution:**

1. Check the command format and make sure that if writing in binary mode the message length field is included.
2. The starting block specified is incorrect for the specific tag you are trying to write. Please check SkyeTek protocol v2.0 available on the "downloads" page of the SkyeTek website for more information.
3. You are trying to write to an incorrect number of blocks. Please check the SkyeTek protocol v2.0 available on the "downloads" page of the SkyeTek website for more information.
4. The specific blocks you are trying to write to are locked. There is no way to tell if blocks on the tag are locked unless you try to write to a block and it fails while writing to another block passes. It is also not possible to unlock blocks once they are locked.
5. A valid tag type was not specified in the command. When reading or writing from an RFID tag the specific tag type must be included. A read or a write will not function correctly with an AUTO\_DETECT tag type. Please check SkyeTek protocol v2.0 available on the "downloads" page of the SkyeTek website for more information.
6. A tag was not in selected state and a tag ID was not provided in the read or write command. Please check SkyeTek protocol v2.0 available on the "downloads" page of the SkyeTek website for more information.

\*All commands written in host software can be tested against the protocol command builder in SkyWare to verify correct commands and CRC values.

**Problem:**

The user port is not functioning correctly or I am unable to control the values on the port pins.

**Solution:**

1. If you are unable to set the values of the GP/IO pins, configure first make sure the user port direction is configured as an output. For more information about this please check SkyeTek protocol v2.0 and also the M1 Reference Guide available on the "downloads" page of the SkyeTek website.
2. The port is enabled for LCD operation. When system parameter location contains the value 0xFF in memory, the user port will be configured for LCD operation. In order to change the user port operation back so that the user port functions as GP I/O, send the following command in ASCII mode:

```
<CR> 20410A0100 003F <CR>
```

The reader will respond with:

```
<LF> 41 538D <CR><LF>
```

After a power cycle, a write to system parameter 0x08 should change the port value correctly. For more information or details please see the M1 Reference Guide available on the "downloads" page of the SkyeTek website.

## Connection Tutorial for Typical RS-232 Connection:

1. Connecting power: The M1 can be powered from a battery or from a constant 5V DC supply. The reader is powered by 2 connections, one to either V5 (5V DC operation) or Vin (1.8 to 5.0V) operation, and another to ground. These are connected through connector J1.

Figure 3 M1-5 and M1-5-232 powered from Battery or VIN  $\leq$  5V DC

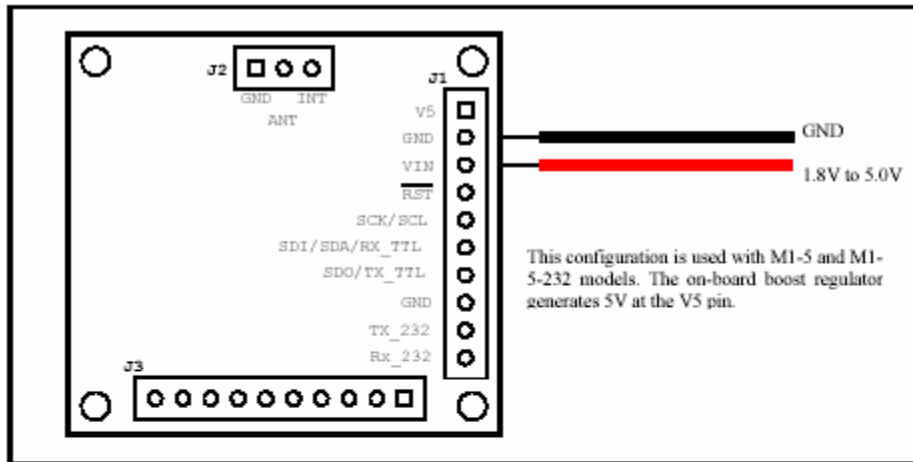
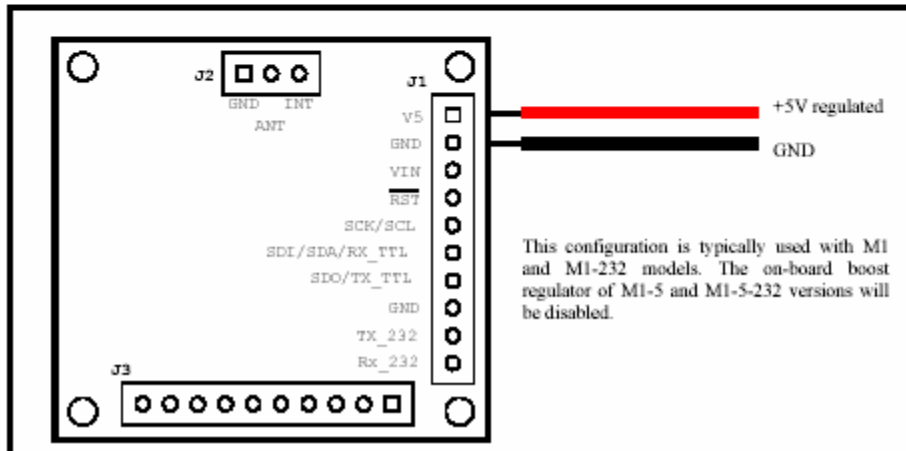
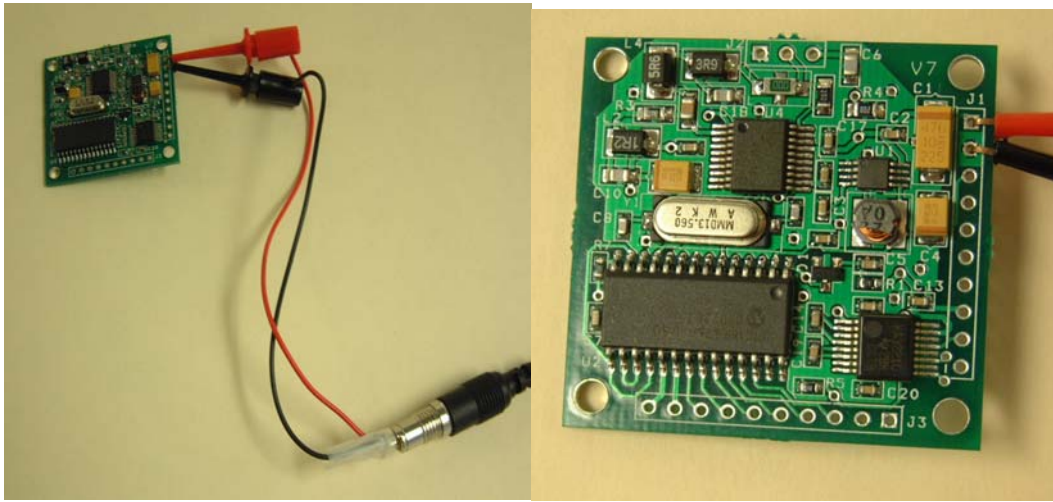


Figure 4 M1 and M1-232 powered from V5 = 5V DC

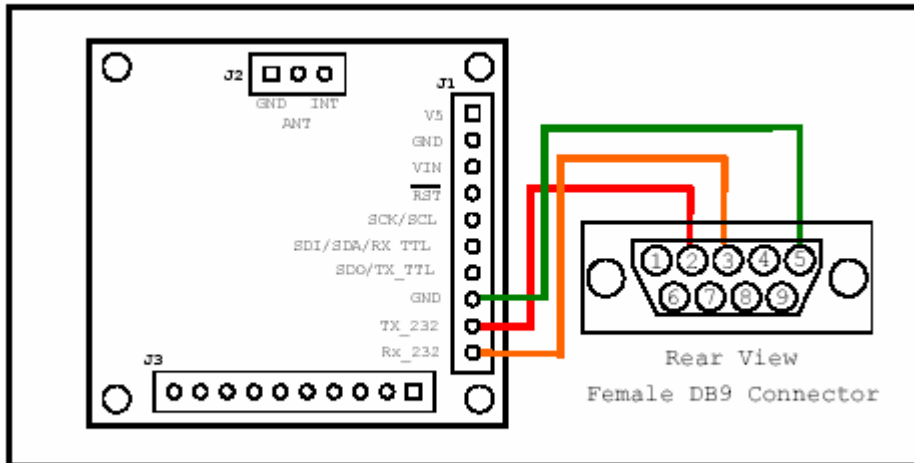


Top view of M1:



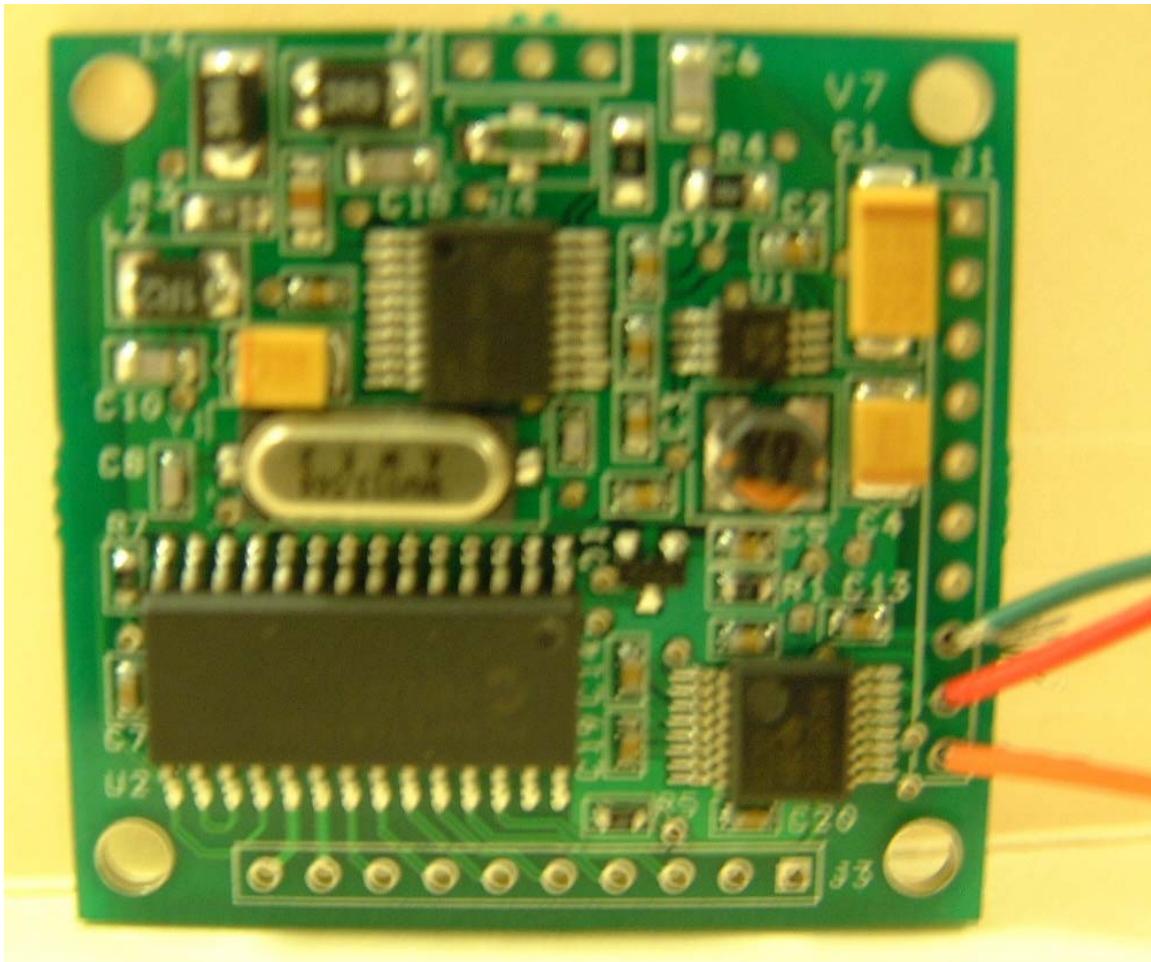
2. Connecting RS-232 Lines: The RS-232 standard uses three signals for communication. The three signals that have to be connected are Rx, Tx, and GND. RX should be connected to pin 2 of the female DB9 connector, TX should be connected to pin 3 of the female DB9 connector, and GND should be connected to pin 5 of the female DB9 connector. Pin 8 of the M1 should be GND, pin 9 should be Tx, and Pin 10 should be Rx as shown in the pictures below.

Figure 6 RS-232 Connection: M1 to PC



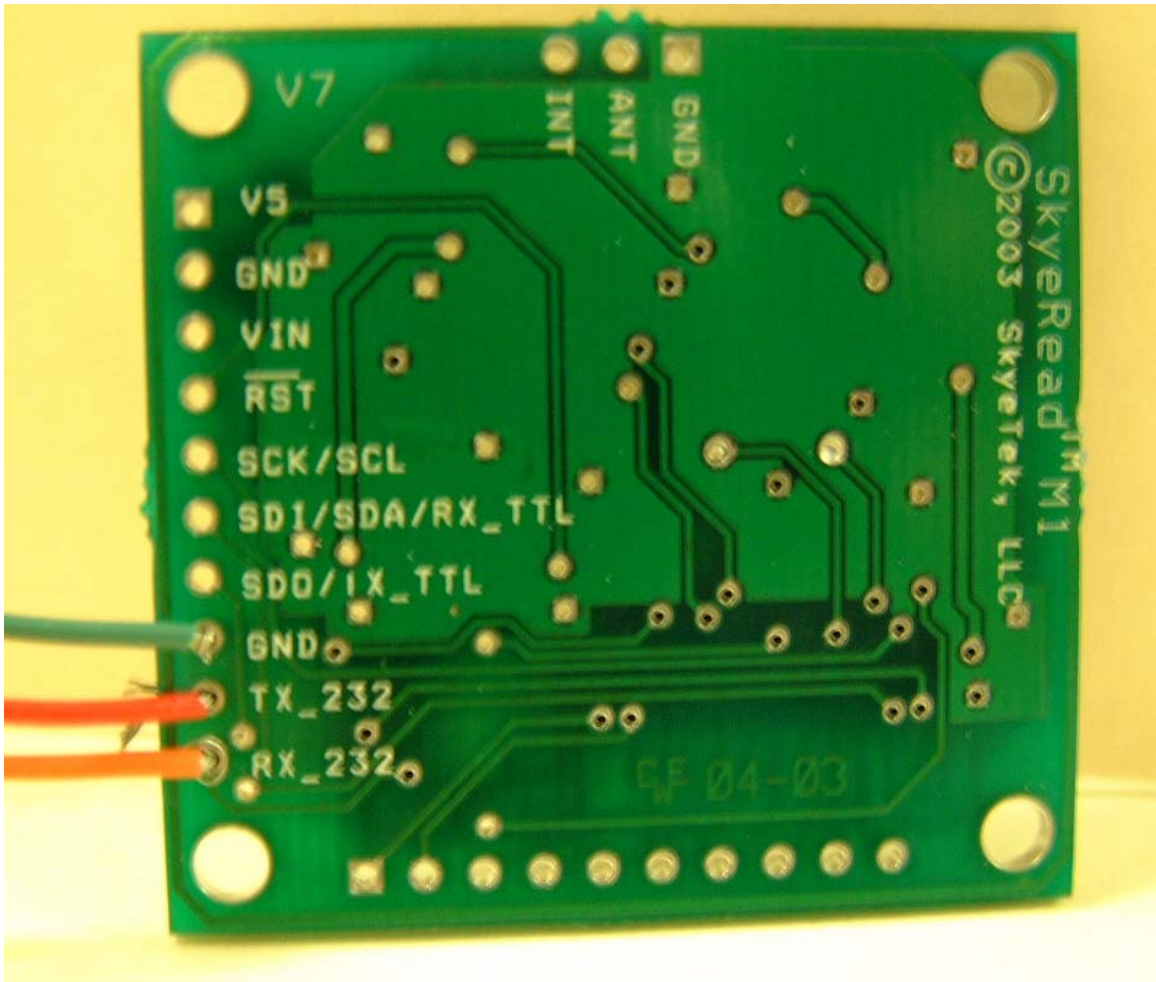
Use a standard serial cable to connect from the DB9 connector in Figure 4-4 to an available serial port on a PC. Using a null-modem cable will NOT work.

Top view of the M1:





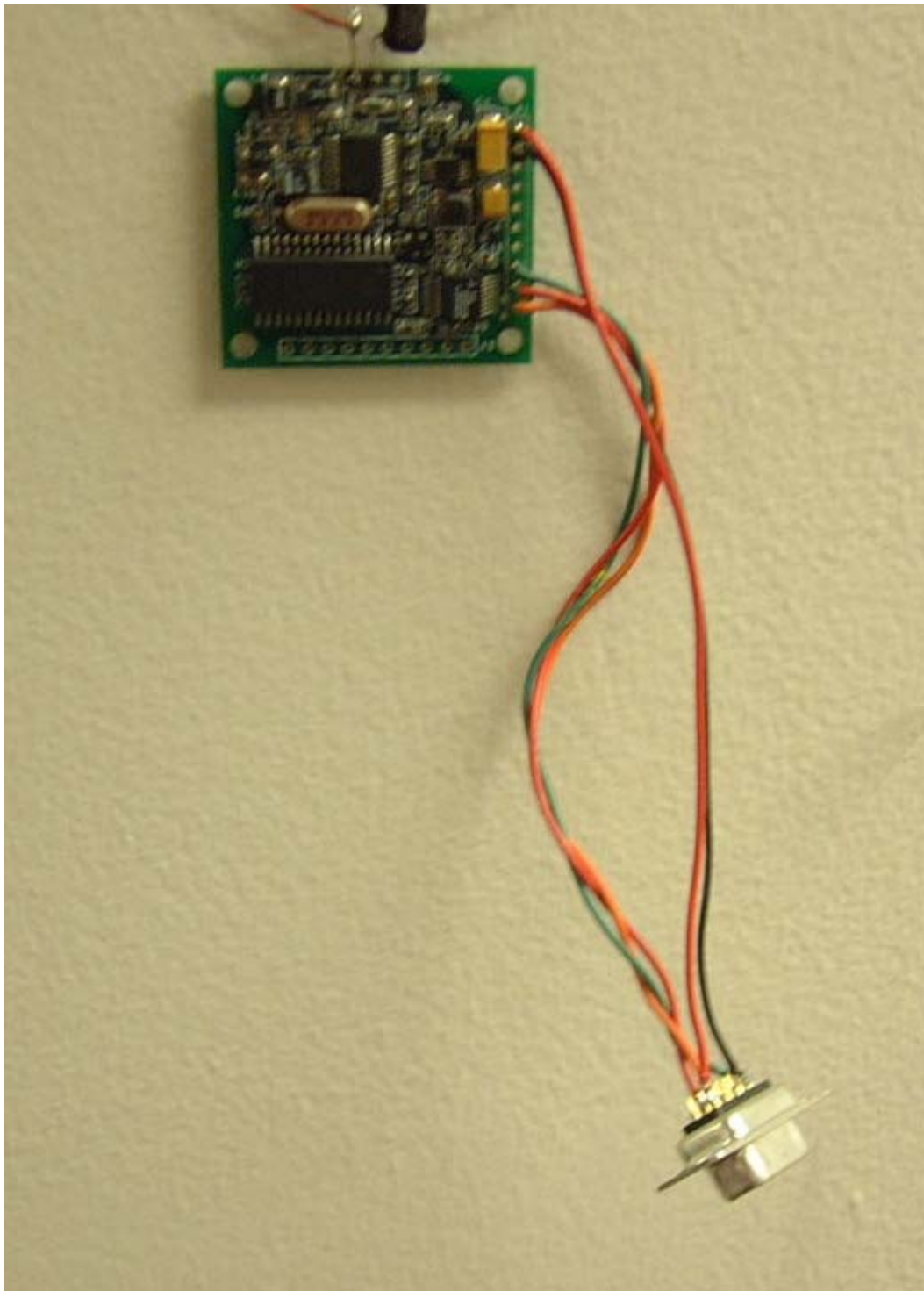
Bottom view of the M1:



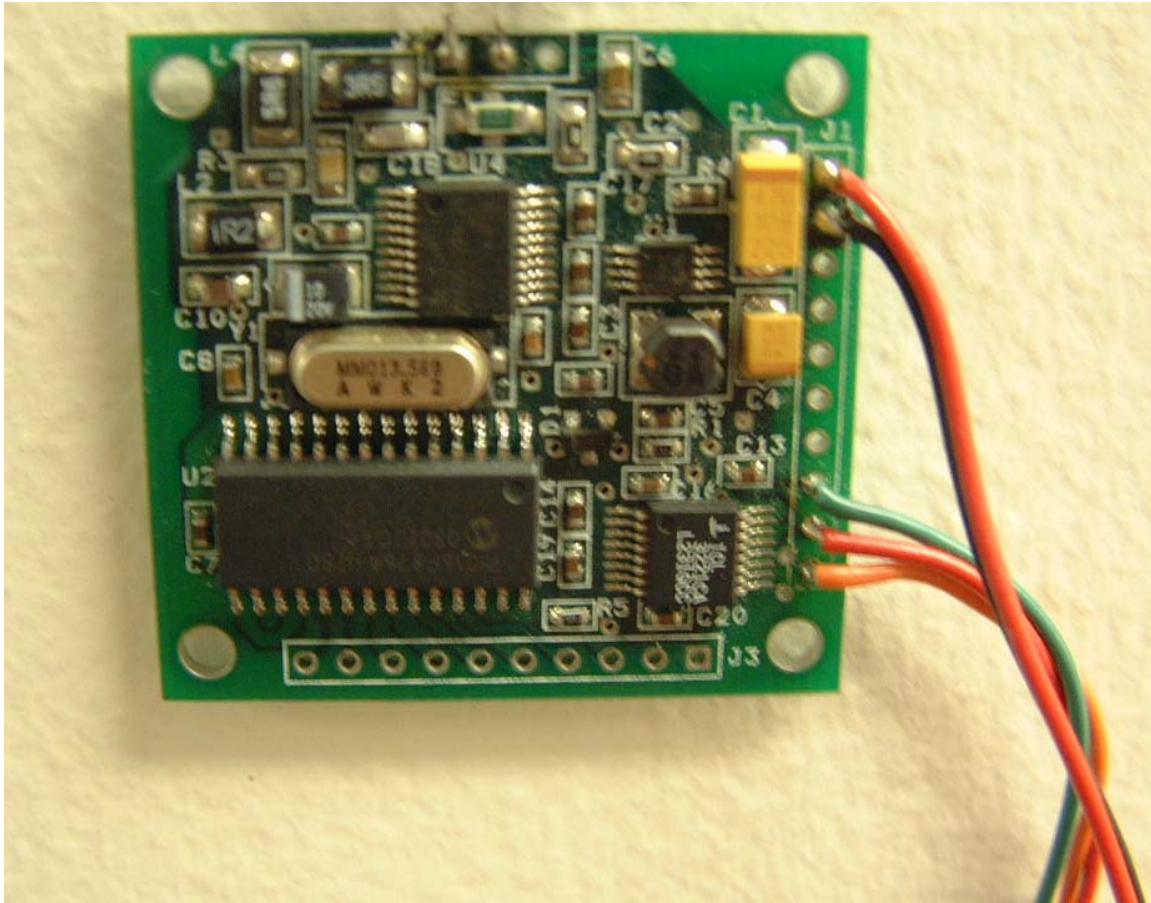
Backside of RS-232 Female Connector:



Top view of completely connected M1:



Close up top view of completely connected M1:



For help connecting the external antenna (EA1), please refer to the EA1 reference guide or application note AN001, SkyTek Antenna Design Guide.