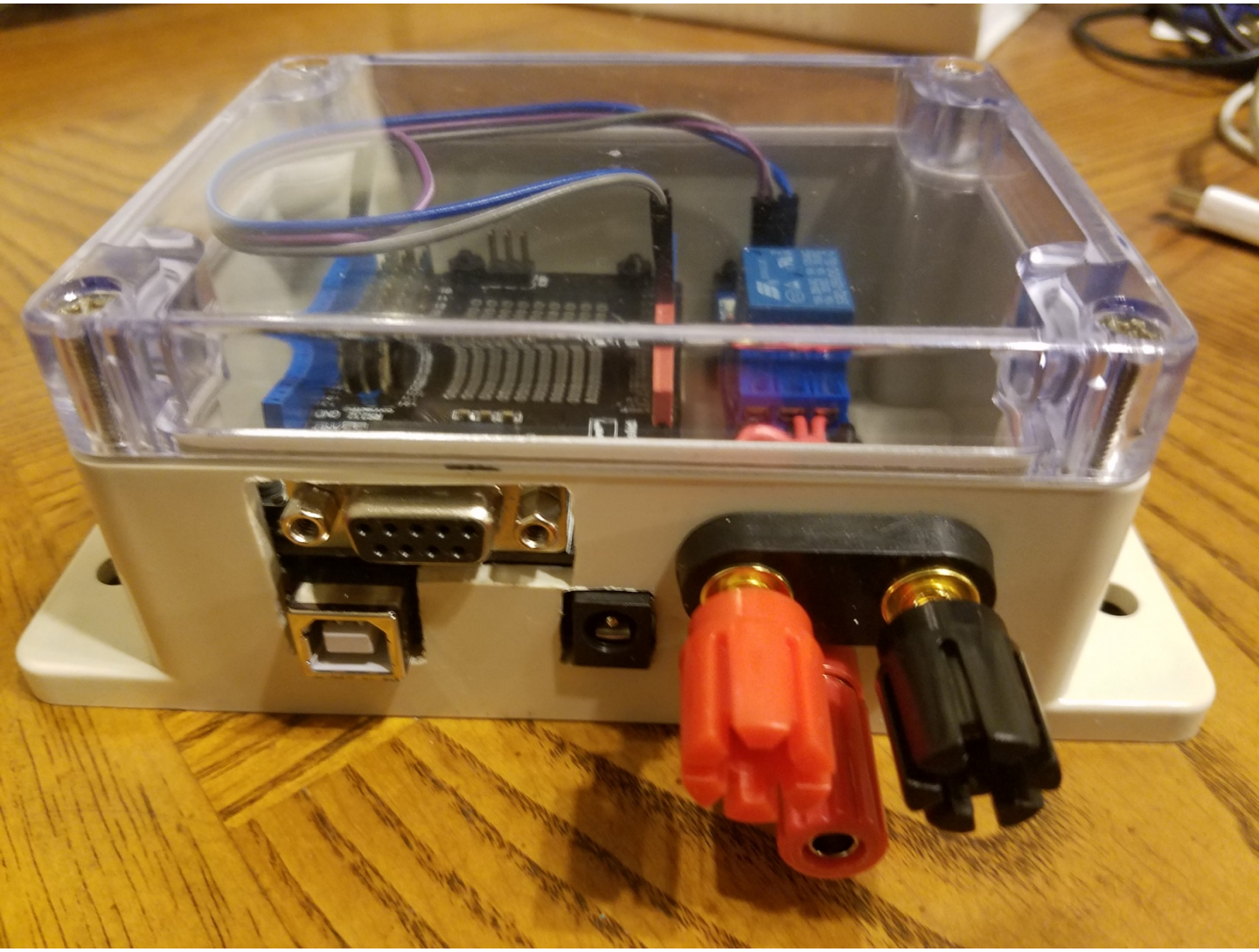
Remote Station Reboot Box (RBX)

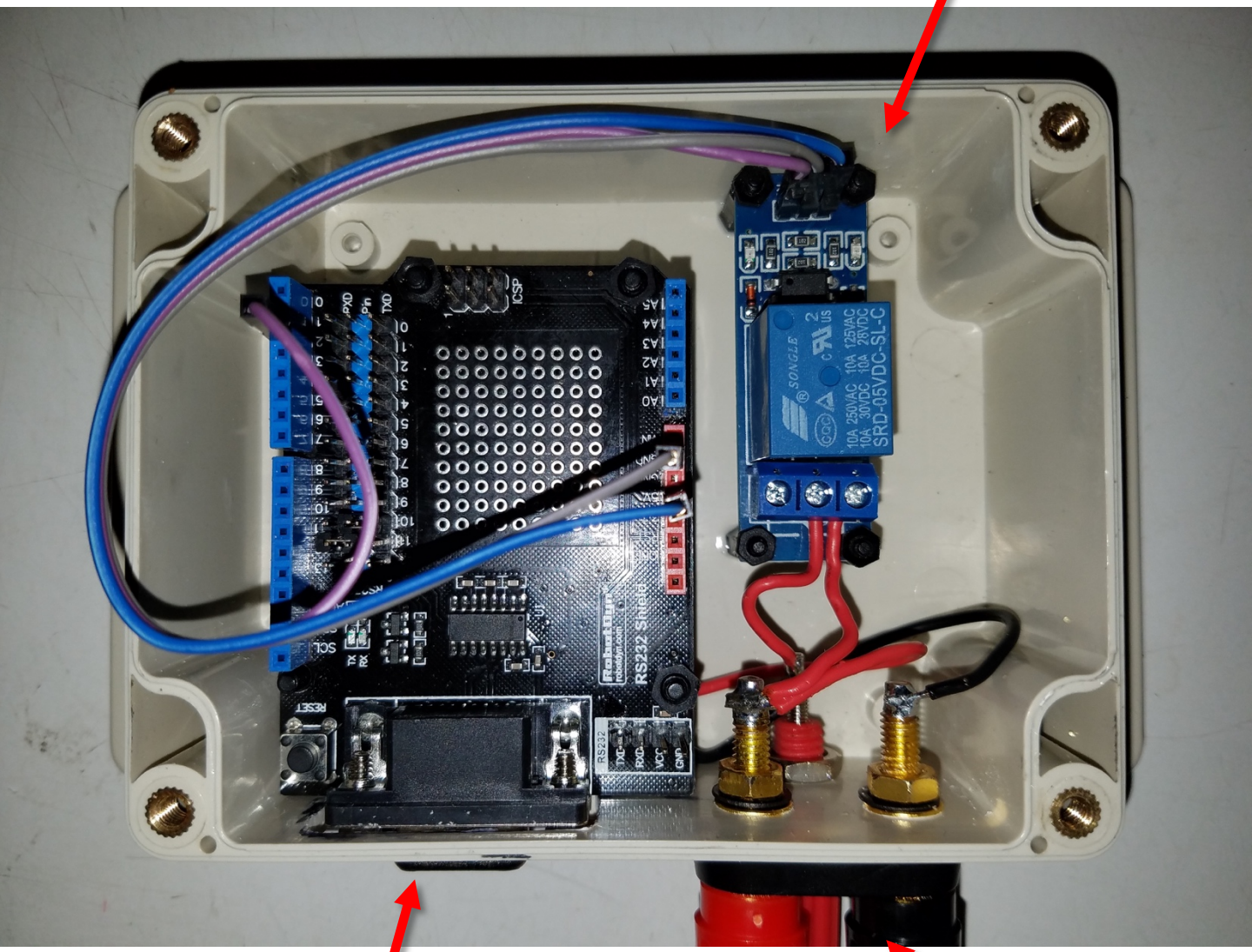
User Guide v0



Justin S. Ball
University of Colorado at Boulder
3/26/18

System Overview

Normally-Closed Relay Module



Arduino Uno R3 with RS232 Shield for Serial Connection to Cell Modem

RBX Inserts Between Battery and Power Box to Interrupt Station Power upon Remote Command

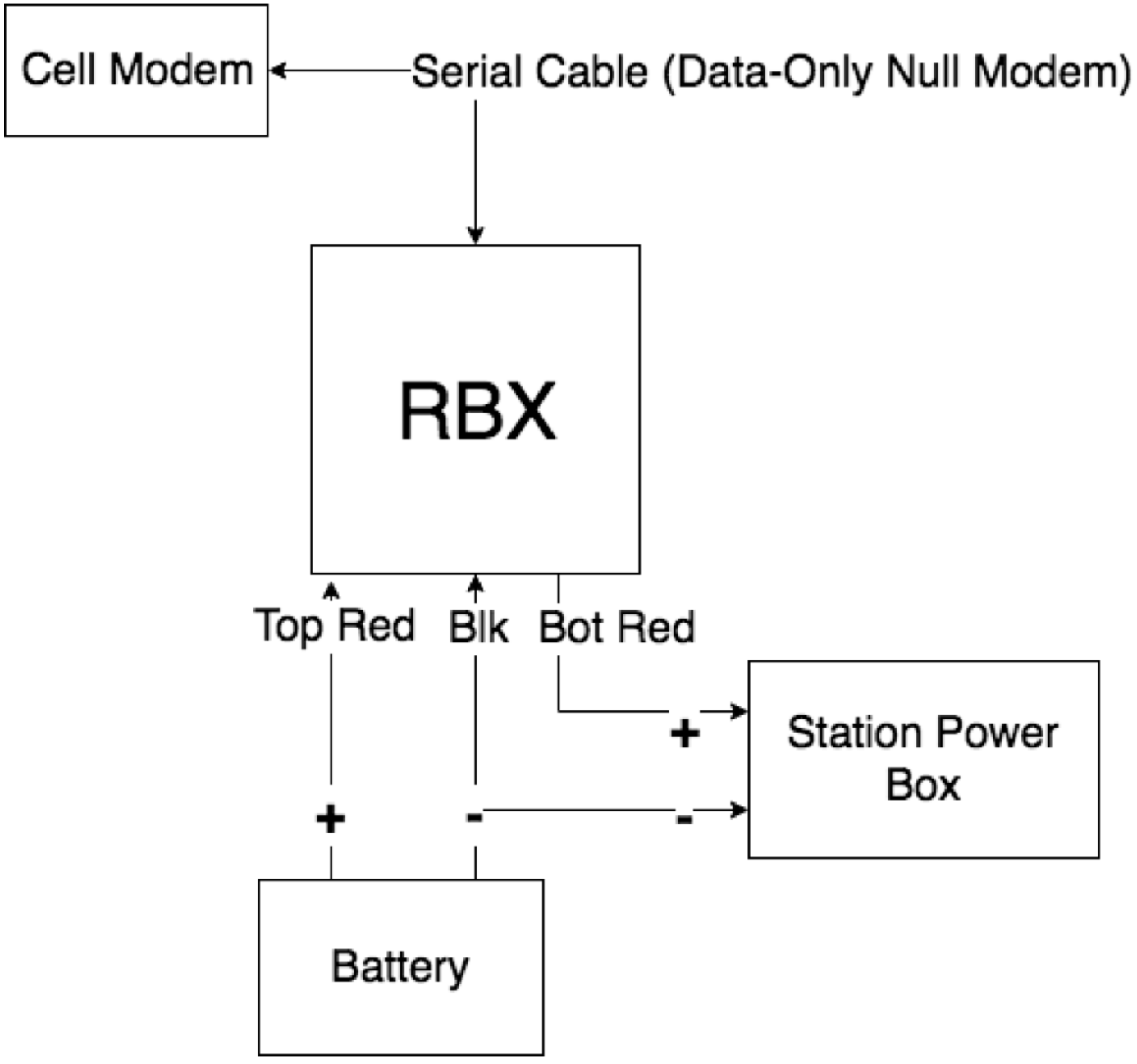
Hardware Installation

1. Connect RBX's RS232 port to modem's serial port using null-modem cable with all flow control lines disconnected.

2. Connect top row red and black terminals to pos/neg posts of main station battery

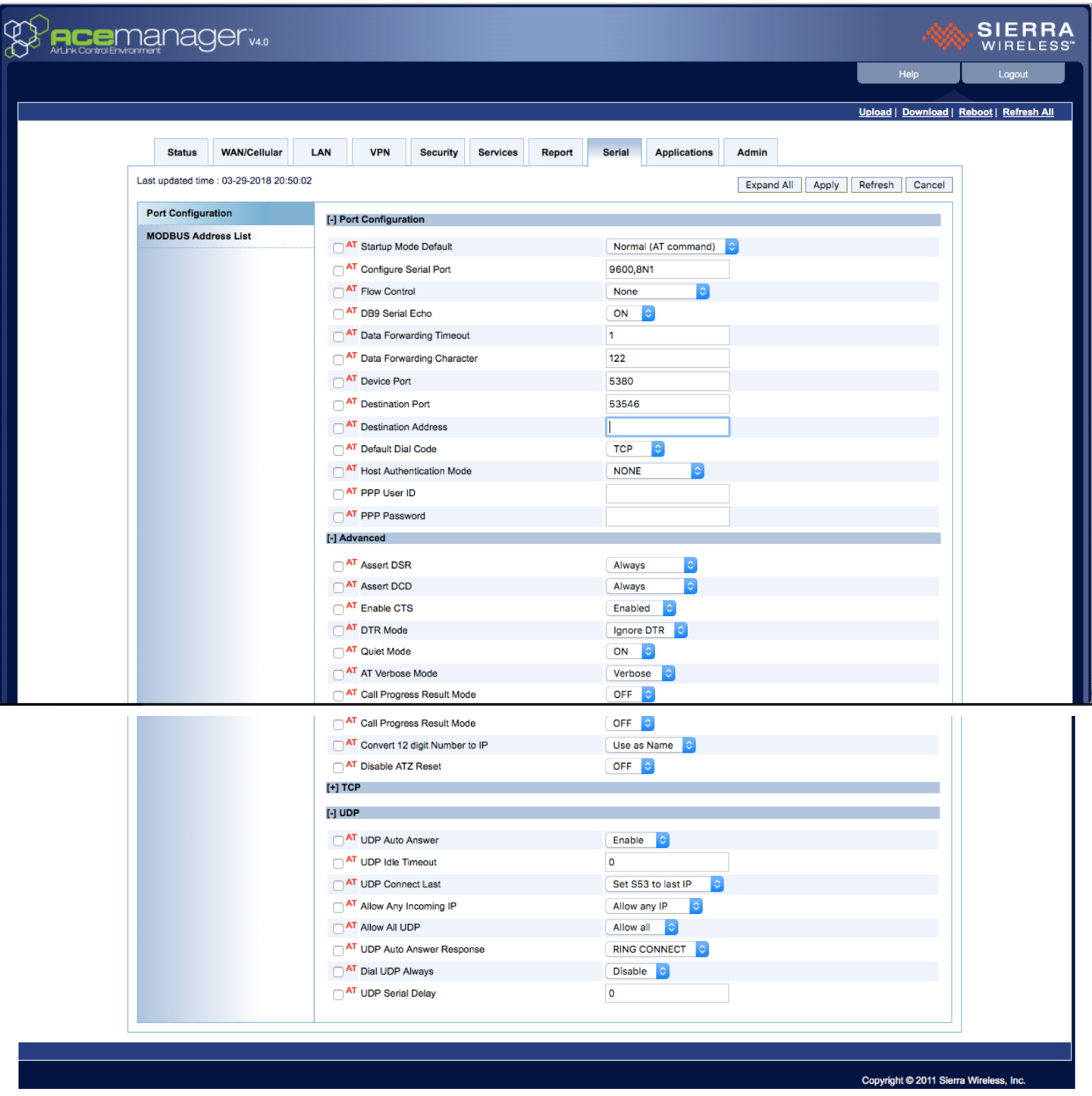
3. Connect station power box positive input to bottom red terminal, and power box negative to the common (black) terminal at top right

Hardware Installation
(Block Diagram)



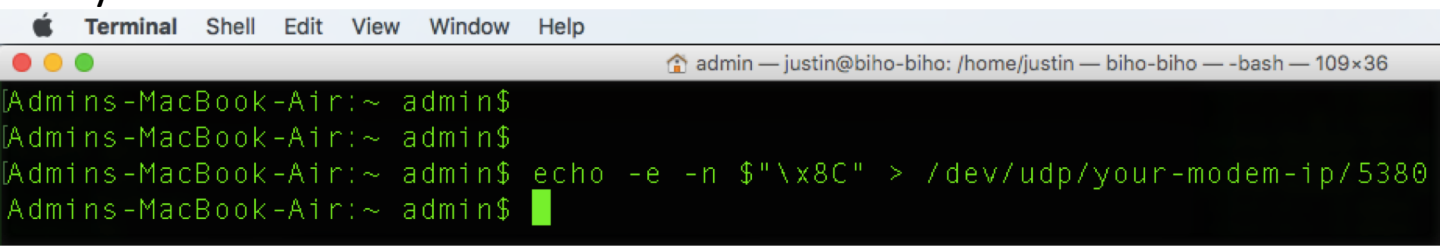
Modem Setup

1. To enable your modem to pass incoming UDP data through its serial port, just log into your modem's firmware on AceManager, go to the "Serial" tab and set parameters as follows. Then hit "Apply":



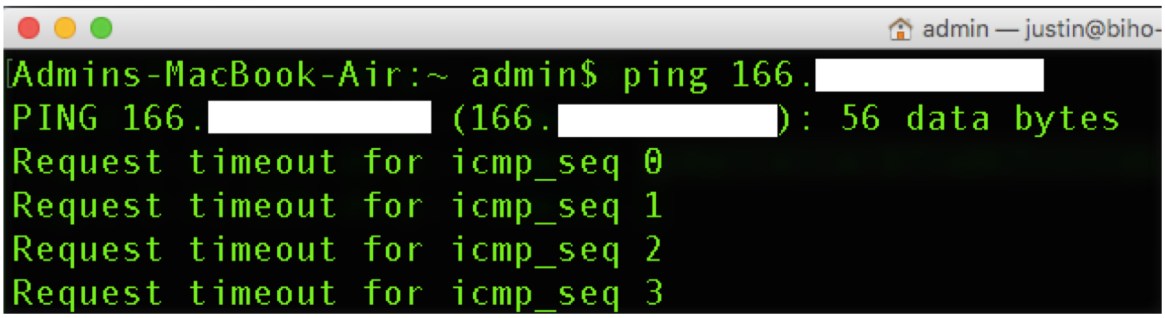
Using the Box to Reboot a Station

1. To reboot a station, simply send the hex byte “8C” (140 in decimal) to UDP port 5380 of the modem. On the bash terminal of any Mac you can do it like this:



The “-e” flag tells echo to interpret “\x8C” as a hex byte, which tells the RBX it’s time to reboot your station.

2. Once you have sent the reboot command to the modem, the RBX will power off the entire station for 1 minute before powering it back on. To check to see if the RBX has done this, try pinging the modem IP address immediately. You should see no response for about 2 minutes:



3. Once the whole station has successfully rebooted after 3-5min, you should again see a ping response from the modem, and data should begin telemetering from the Reftek to your server: