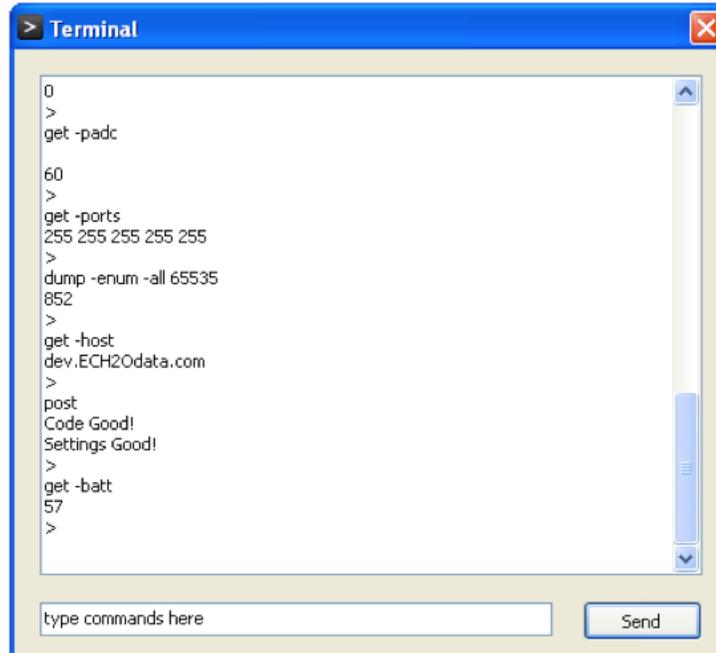


## Em50G with a user-supplied SIM

Please follow these installation, configuration, and troubleshooting instructions when using a user-supplied SIM in the Em50G data logger.

1. Obtain a standard-sized SIM from your local GSM cellular carrier. The Em50 typically uses less than 500 KB per month. This SIM should enable internet data for the Em50G without needing a proxy setting. The Em50G doesn't use voice, SMS (texting), or WAP protocols. The cellular carrier must supply the APN setting to access internet data. The carrier may also provide a user name and password associated with the APN setting. The Em50G doesn't require a public or fixed IP address nor does it use mobile-terminated services.
2. First, install the SIM in the Em50G. Unscrew 4 screws of the printed circuit board (PCB) in the Em50G. Carefully tilt the PCB up and forward to expose the back of the PCB while also leaving the antenna cable connected to the cellular module. There is no need to unscrew the antenna connector from the Em50G case or disconnect the antenna cable from the cellular module.
3. Slide the top of the SIM holder back towards the cellular module to unlock the SIM. Insert the SIM into the holder with the correct orientation. Close the holder and slide the top of the holder away from the cellular module to lock the SIM in place. Put the PCB back in the Em50G case.
4. Launch ECH2O Utility. The latest version of ECH2O Utility is available for download here: <http://www.decagon.com/support/ech2o-utility-download/>
5. Connect the Em50G to ECH2O Utility. Once connected, choose "Show Terminal" from the Window menu. This opens a dialog box showing the serial commands sent between the Em50G and ECH2O Utility. Commands you type go in the lower left text box (left of the Send button). See below.



6. Type the following command in the command box:

**set -apn <apn\_setting>**

where <apn\_setting> is the APN setting provided by the cellular carrier.

7. Press the Send button in the Terminal window. You should see this command and the response from the logger show up in the window above the command box. Make sure the logger sent "OK". If you see "ERROR", make sure you've typed the command correctly. If the Send button is disabled, make sure you are typing the command in the small text box next to the Send button.

8. If the carrier supplied a user name and password for use with the APN, set these with the following commands:

**set -user <apn\_user>**                      Press the Send button

**set -passwd <apn\_password>**              Press the Send button As above, the Em50G should return "OK" after each command.

Example for an AT&T Sim card:

	Settings	Code to write into the terminal
APN	gdsp.tahmo.org	set -apn gdsp.tahmo.org
user	none	set -user
password	none	set -passwd

9. Now you are ready to test the Em50G communicating over the cellular network. Click the "Test..." button in the Communication Hardware Options portion of the main window of ECH2O Utility to start a Cellular Connection Test. Please note any errors you see. See below for troubleshooting tips.

10. Done. If you haven't already, please reattach the PCB into the Em50G case.

## Troubleshooting

Please follow the suggestions in this guide when troubleshooting cellular connection issues with the Em50G logger. Performing these steps before contacting Decagon or your cellular carrier will result in the quickest possible resolution of the problem.

Consider the simple causes first. Is the Em50G antenna connected? Is the logger installed where there is cellular service? Did you configure the APN setting correctly?

Use the Communication Test feature of ECH2O Utility (in the Action menu) to test the cellular connection at the location where the Em50G is deployed. Important messages appear in the "Test Status:" field above the progress bar. Carefully note the error message and match with the messages below. **Always perform the Em50G Communication Test several times to make sure the error (or success) is not intermittent.** It is normal for the Em50G to take longer to connect to the cellular network when it is first used in a new area.

"SIM failed (with error code)"

go to issue 1

"GPRS network registration timeout error"

go to issue 2 “GPRS network registration denied or failed” go  
to issue 2 “failed to start internet connection” go to issue 3  
any other error message go to issue 4

**Issue 1.** The SIM card in the Em50G enables cellular communications. A SIM failed error indicates the SIM isn’t operating correctly or isn’t inserted in the logger correctly. If the SIM is installed correctly, contact your cellular provider for suggestions.

**Issue 2.** GPRS network registration errors indicate the Em50G is not able to connect to the local cellular network. The reason for this failure could be as simple as there is no cellular coverage at the install location. Try the following troubleshooting steps:

- A. Try the Em50G Communication Test again. Move the Em50G a short distance to see if there is better cellular signal at a different location.
  
- B. Use the “List Cellular Carriers...” feature of ECH2O Utility (Action menu). This feature lists the cellular carriers within range of your Em50G. If no carriers are listed, then the Em50G is not within range of a cell tower or there is a hardware problem with the Em50G.
  
- C. Use the coverage maps published by the local carrier to see if the location of your Em50G should have cellular signal for data communication.

**Issue 3.** Failures with the internet connection indicates the Em50G was able to successfully attach to the local cellular network but is unable to access the internet for transmitting data. This error typically indicates a problem with the APN configuration of the. Revisit steps 6-8 in the instructions above to make sure you have the correct settings for the SIM.

**Issue 4.** Please note the specific error message you see with ECH2O Utility (a screen capture or even a cell phone picture are also helpful). Contact Decagon or your Decagon representative. Send the following information:

- Device ID (serial number) of your Em50G
- Specific error messages from Cellular Connection Test
- List of carriers from the “List Cellular Carriers...” test (if applicable) The carrier for your user-supplied SIM

You can use the “Send Feedback to Decagon...” feature of ECH2O Utility (Help menu) to send this information to Decagon. You can also email Decagon customer support [support@decagon.com](mailto:support@decagon.com).

**Please Note: Decagon’s has limited ability to help troubleshoot the cellular connection when using a SIM you provide. Please also contact your cellular provider for support.**