Installation Manual
Cellular Modem

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Philadelphia Scientific®
industrial battery innovation

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Cellular Modem

1. Introduction

1.1 System Overview

This manual will give you all the information that you need to connect your iBOS® controller to a cellular modem to connect to the Internet. An Internet connection is necessary to transmit data from the iBOS® controller to iBOSworld.com where you can find valuable information regarding activity in your battery changing area. An iBOSworld subscription is required.

There are three options for installation detailed in this manual. All three installation options are compatible with the iBOS® Pro 6 Series control box while only the last two installation options (where the cellular modem is located outside the control box) are compatible with the iBOS® Plus 6 Series control box.

1.2 Organization of this Manual

This manual has been divided into sections for each of the stages of an installation project:

- Section 2 – System components. This section is simply to help you get familiar with what the various parts of the system are and what they look like.

- Section 3 – Diagrams for Installation

- Section 4 – Pre-installation. You have ordered the system and are ready to go on the installation trip. The steps in this section are invaluable in preparation for when you are on site. Our goal is that you only need to make one trip to complete the installation.

- Section 5 – Installing the hardware. Finally, the actual installation steps to get everything mounted and wired.

- Section 6– Final Inspection and testing

- Section 7– Troubleshooting

1.3 Contact Information

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2. System Components

2.1 Cellular Modem and Mounting Bracket

The cellular modem transmits data from the iBOS® controller through the Internet via broadband cellular to iBOSworld.com.	
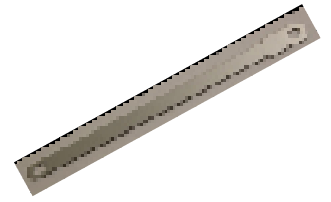
2.2 Power Supply

The power supply provides power to the cellular modem.	

2.3 Antenna

The antenna connects to the modem and transmits data to the cellular network.	2 x

2.4 Peripheral Data Cable

The peripheral data cable connects the Ethernet port on the iBOS® controller to the Ethernet port on the cellular modem.	

2.5 Optional 50' Peripheral Data Cable

An optional 50' (15.2 m) cable is used when the modem is located outside of the control box, and a 6' (1.8 m) or shorter cable is used when the modem is located inside or near the control box.	

2.6 Optional Antenna Extension

Optional antenna extension BOS-163 used to locate the antenna to a position with a stronger signal.	

2.7 Optional Signal Booster

Optional signal booster BOS-262 used in locations with weak cellular service.	

3. Diagram of Installation

Option 1: Cellular Modem Located Inside Control Box (iBOS® Pro 6 Series only)
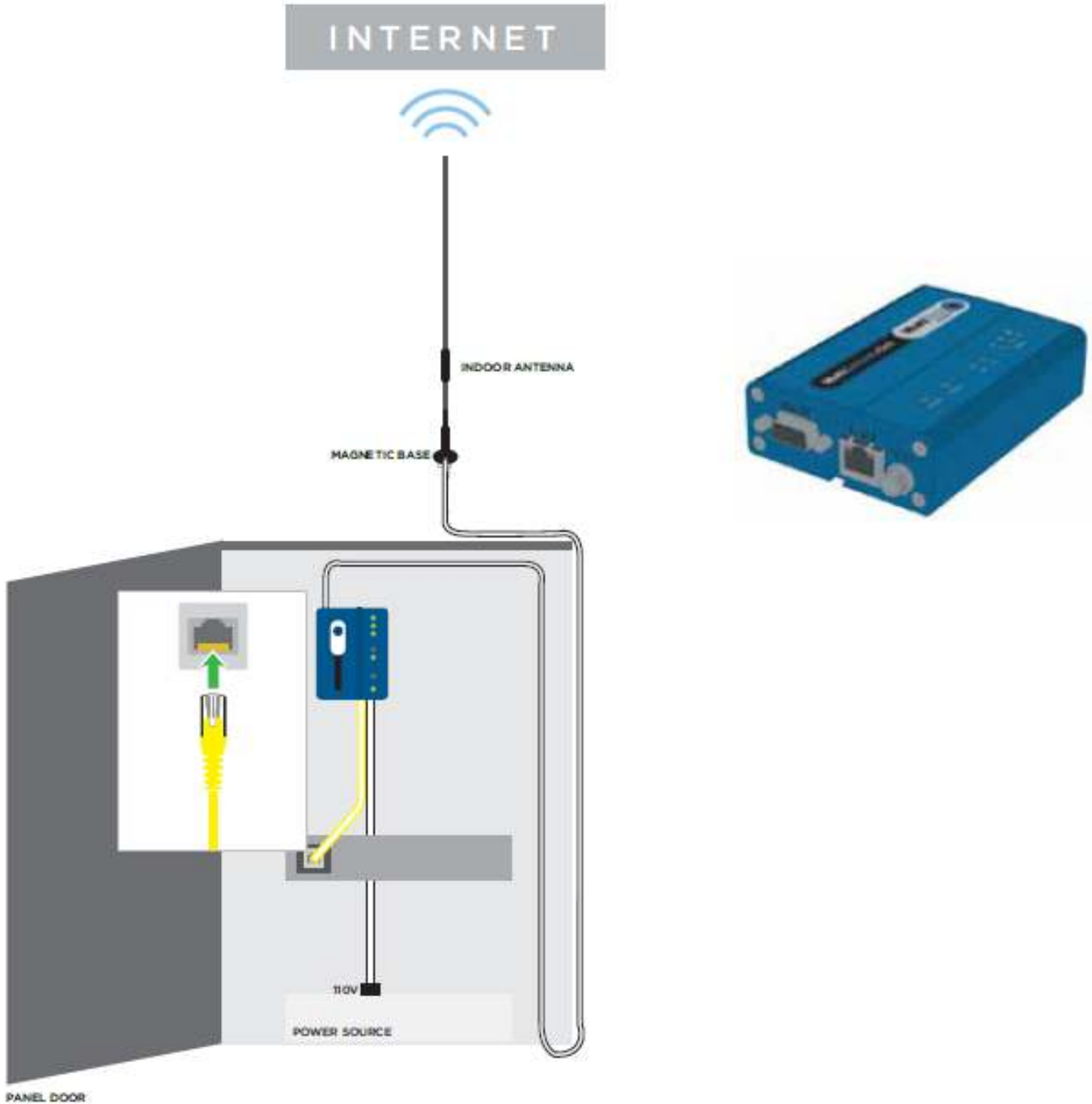
Option 2: Cellular Modem Located Outside Control Box

INTERNET

up to 300 ft away

AC 110 - 220v

Option 3: Cellular Modem Located Outside Control Box with Antennas Mounted Outdoors

EXTERIOR ANTENNA

BOX BOTTOM

WALL

CONTROL BOX

AC 110-220V

4. Pre-Installation

These are items that should be done before installation begins.

4.1 Tools

There are a few tools that are needed for the installation:

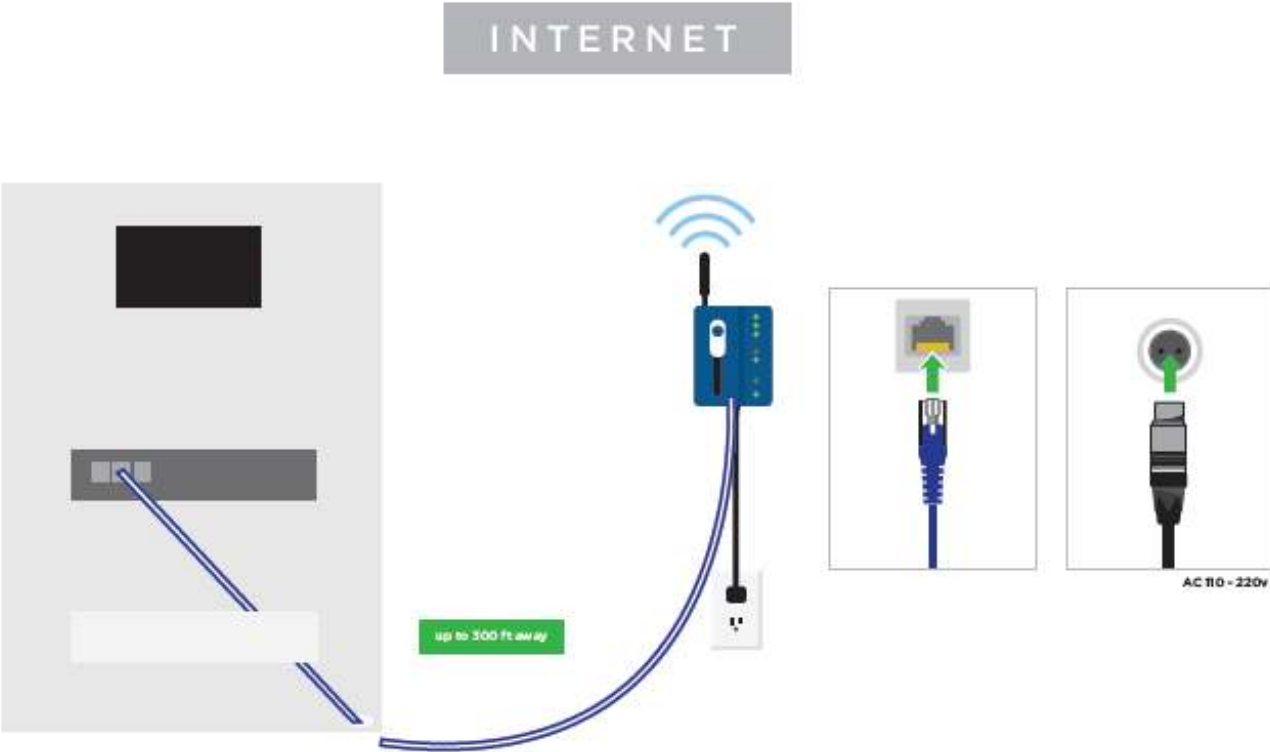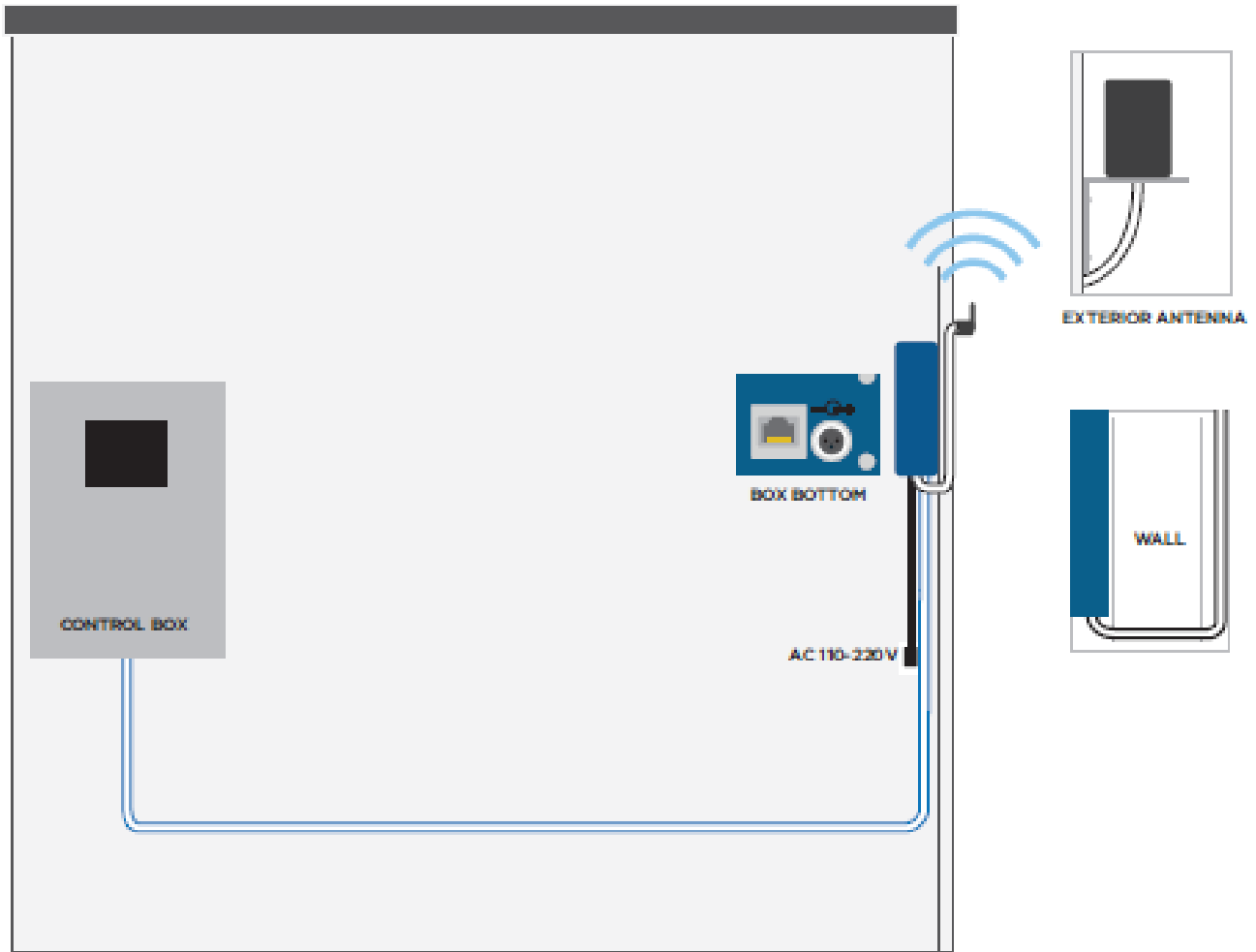- Drill & Bits (depending on where the cellular modem is mounted)

- Anchors (suitable for the length and modem mounting surface)

- Phillips Head Screwdriver (for opening the iBOS® Pro 6 Series controller)

4.2 Location

- Choose a location to mount the cellular modem in a safe area that will be free from hazards.

- Mount it in a secure area where it is not easily accessible if possible.

- Choose a surface to mount the modem where anchors can be used.

4.3 Signal Strength

The standard modem uses Verizon Wireless Service to upload iBOS® event data. You can verify a good signal is available using any Verizon based phone. If no signal is available in the battery room, mount the antennas outdoors or install the optional signal booster to improve reception.	

If you do not have Verizon coverage in the location but do have AT&T, you will need to special order the modem. Global coverage by Vodafone is also available.

Note: Additional charges for cellular service are required.

Note: AC Power (110-240 VAC / 50-60 Hz) is required to power the cellular modem and must be available at the location where Cellular Modem will be installed.

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5. Installation

5.1 Option 1: Cellular Modem Located Inside Control Box (iBOS® Pro 6 Series only)

5.1.1 Mounting Bracket

Slide the cellular modem mounting bracket into the slot on the back of the modem.	
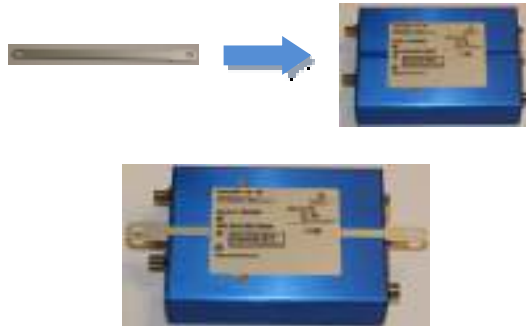
5.1.2 Modem

Mount the cellular modem inside the control box.	

5.1.3 Power Supply

Connect the power supply to the modem and plug the power supply into a 110 or 240V (50-60Hz) receptacle or a UPS inside the control box, if available.	

5.1.4 Ethernet Cable

Connect the 6' (1.8 m) Ethernet cable to the Ethernet port on the cellular modem. Connect the other end of the Ethernet cable to the Ethernet port on the iBOS® controller.	

5.1.5 Antenna

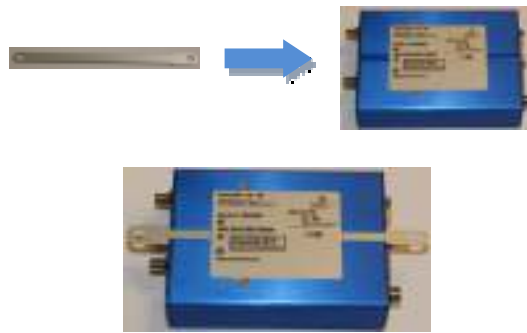| Place the antennas on top of the control box and route the antenna cables through the hole in the bottom of the control box. Connect the antenna cables to the CELL and AUX connectors on the cellular modem. (Do not drill holes in the top of the control box.)	

5.2 Option 2: Cellular Modem Located Outside Control Box

5.2.1 Mounting Bracket

Slide the cellular modem mounting bracket into the slot on the back of the modem.	

5.2.2 Modem

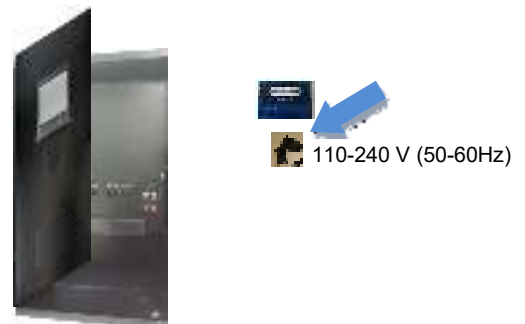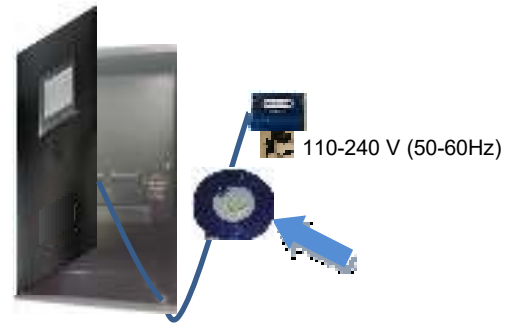| Mount the cellular modem in a location outside of the control box where 110 or 240V (50-60Hz) power is provided and the cellular modem has a signal. (It is desirable to have at least two bars for strong communications.)	

5.2.3 Power Supply

| Connect the power supply to the modem and plug the power supply into a 110 or 240V (50-60Hz) receptacle.	 110-240 V (50-60Hz)

5.2.4 Ethernet Cable

Connect the optional 50' (15.2 m) peripheral data cable to the modem. Route the cable through the hole in the bottom of the control box and plug the cable into the controller's Ethernet port.	110-240 V (50-60Hz)

5.2.5 Antenna

Mount the antennas on an appropriate surface and connect the antenna cables to the CELL and AUX connectors on the cellular modem	110-240 V (50-60Hz)
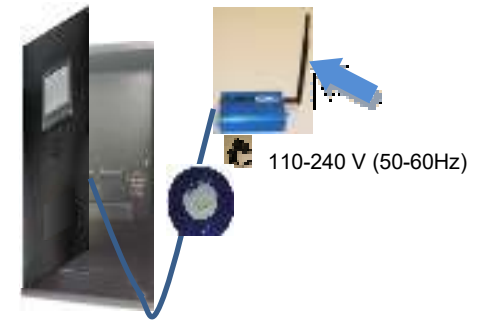
5.3 Option 3: Cellular Modem Located Outside Control Box with Antennas Mounted Outdoors

5.3.1 Mounting Bracket

Slide the cellular modem mounting bracket into the slot on the back of the modem.	

5.3.2 Modem

Mount the cellular modem in a location outside of the control box on an outside wall where 110 or 240V (50-60Hz) power is provided.	

5.3.2 Antenna

Mount the antennas to the outside of the building as high as possible. Route the antenna cables through the wall and connect them to the CELL and AUX connectors on the cellular modem.	

5.3.3 Ethernet Cable

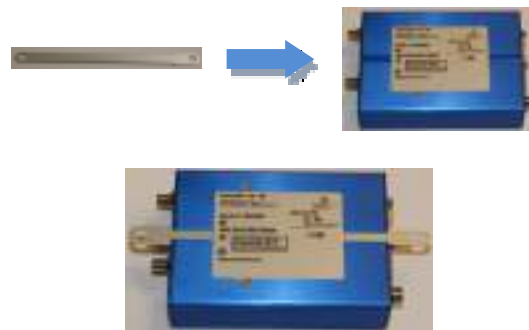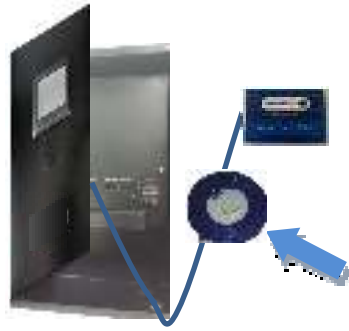| Connect the optional 50' (15.2 m) peripheral data cable to the modem. If additional cable is needed, up to 250' (76.2 m) can be used but use the least amount necessary. Use the couplers provided to connect the cables. Route the cable through the hole in the bottom of the control box and plug the cable into the controller's Ethernet port.	

5.3.4 Power Supply

Connect the power supply to the modem and plug the power supply into a 110 or 240V (50-60Hz) receptacle.	110-240 V (50-60Hz)

6. Final Inspection and Testing

Task	Status
Are all cable runs and connections for the communication cables secure?	☐

Modem Top panel LED States
 	
   • Power   On
   • Status   Flashing
   • CD   On
   • LS   On or Flashing
   • Signal Strength 2 or 3 LED's ON
 	
Note: To improve Signal Strength, reorient or relocate the antennas until 3 LED's stay on.
	☐

Modem Side panel LED State • Right Ethernet LED Blinking or On 	☐
Does the iBOS® system upload to iBOSworld.com?	☐
Reset the Maintenance screen to the default password ("11111") or Settings screen to the default password ("919191") when leaving the box if it was changed during installation.	☐
Ensure that the Date and Time is set correctly.	☐
Close the box and fasten the screws (locking is optional).	☐

7. Troubleshooting

iBOS® controller does not upload to iBOSworld.com	Be sure that DHCP Mode is selected on the Internet Setup screen. See iBOS® Installation Manual, DOC0023, for details.
	Be sure that there is power to the modem and that it has a signal.
	Check that the Ethernet cable is connected to the controller and the modem.
	Check that the antenna connection is tight.
	If there is no CD light illuminated, reboot the cell modem. With the CD light on and at least two lights on the signal strength, press Reboot under Internet settings. Press Upload Now under Internet settings and check Time Since Last Upload under Status.