

Getting Started Guide

Model 8100/8110 Consumer Web Portal



**A guide to setting up and using the features of your
Mobile Monitoring Portal and Asset Beacon**

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Safe Handling of Your 8100 Beacon

Your 8100 beacon is manufactured to exacting standards and is thoroughly inspected and tested prior to delivery. However, it must be used as intended to provide safe and reliable service. The following warnings are intended to ensure that incorrect usage is avoided.

- Never attempt to disassemble your 8100. If service or repair is required, return the unit to your supplier or another authorized CONTIGO service center. There are no user serviceable parts inside.
- Use only CONTIGO approved accessories or optional equipment. Use of incompatible equipment could result in fire, electric shock, or bodily injury.
- Never store or transport flammable liquids, gasses, or explosives in the same compartment as your 8100 or any of its components or accessories.
- Always secure your 8100 and its accessories when using in a vehicle. Never place the units anywhere they can become projectiles during a collision or sudden stop.
- Never expose your 8100 to high temperatures such as those found near a heater or engine components. This can cause heat damage to the plastic components, the electronic components, the wiring, and the battery.
- Never drop your 8100 or expose it to impact or shock. This can cause mechanical damage.
- Never use harsh chemicals, cleaning solvents, or strong detergents to clean your 8100.
- Never attempt to dispose of your 8100 by throwing it into a fire.
- Ensure that your 8100 is turned off prior to transporting by air.
- Do not proceed into areas posted "Turn Off Two-Way Radios", such as blasting areas.
- Never connect your 8100's battery to a charger other than one specified by CONTIGO.

Introduction

Congratulations on your purchase of the 8100 or 8110 GPS tracking beacon. With your GPS beacon and Mobile Monitoring Portal you will have peace of mind knowing that you can quickly and easily locate and manage the vehicle, asset or person that your GPS beacon will be associated with.

The 8100/8110 is a powerful GPS tracking beacon that, when used in conjunction with the web software application, provides an end-to-end solution for a variety of tracking needs. As indicated above, this beacon comes in two model numbers – the 8100 and the 8110. While both models utilize the same hardware device, the model numbers are used to differentiate service levels provided by two different communication methods to connect the beacon to the web software. The 8100 uses what is known as Control Plane (CP) and the 8110 uses User Plane (UP). While both methods provide location capabilities, User Plane provides the ability to receive more frequent and faster location updates, and provides the ability to receive a battery status alert. Contact your service provider to confirm which service level you have chosen. For simplicity, all references in this guide to the 8100 are intended to cover both the 8100 and the 8110, unless noted.

This guide is intended to be used after your beacon has been provisioned and set up by your provider. This guide will assist in verifying the operation of the beacon and will guide you through the steps necessary to operate the self-serve features that are accessible via your portal.

System Requirements

In order to access the system, your computer must meet the following minimum requirements:

- Windows XP (Home or Professional) or Windows Vista
- Pentium IV or newer with a 1Ghz or faster processor with 512 MB of RAM
- Internet Explorer 6.0 or greater with Service Pack 2 or newer
- Broadband internet connection

The system may also be used with Macintosh, Linux and Unix computers running a standard web browser such as Firefox (version 2.0 or greater); however the system has not been certified for these platforms and some functions may not work as described in this guide.

Please note that if you do not have Internet access, or choose not to use any self-serve features, all data can be entered and all functions can be operated on your behalf by an authorized operator using their Mobile Monitoring System. If you have not already done so, arrange a secret Passcode with your supplier to authorize their operators to access your account.

It is also important to understand that the Mobile Monitoring System uses web-based software applications which may be upgraded from time to time. For this reason, some aspects of this document may not represent exactly how the system works at the time you are using it. For the latest system information, consult the Help system within the portal.

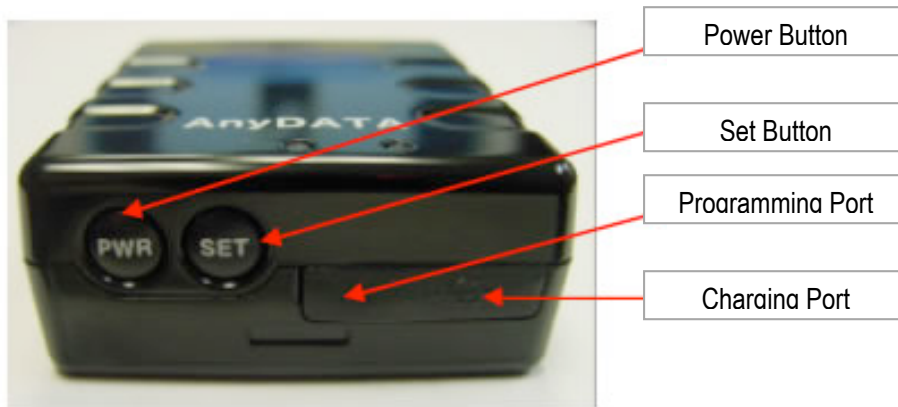
You should keep this guide in a safe place for future reference. It is also recommended that you take a moment to write down your beacon's Electronic Serial Number (ESN) on the back page of this guide. The ESN number can be found on the beacon label (under the battery) and on the packing box.

Beacon Overview

The 8100 is a compact GPS tracking device that utilizes Hybrid Assisted GPS (HA-GPS) technology to provide the best possible location in the widest ranges of conditions. This beacon can be used to locate and track a wide range of items, from people to vehicles to assets.

The HA-GPS location technology built into the 8100 is the most advanced in the world. By combining GPS satellite information with cellular triangulation, this beacon can be located in challenging signal environments, including many places indoors.

The diagram below provides an overview of the various buttons and ports on the beacon. To access the charging and programming port, you must carefully open the plastic cover using your fingernail or a small, flat head tool. Be careful not to break the cover.



Note that you will likely never need to use the programming port, and the SET button does not currently have a designated function.

Power On and Off

The 8100 can be powered on and off using the PWR button located at the bottom of the unit. The table below outlines the duration of the button press required to turn the unit on and off, and the corresponding LED pattern.

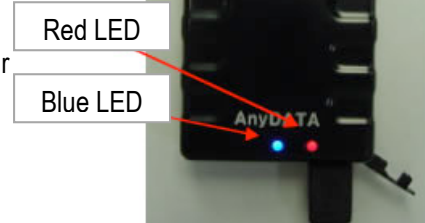
	Action	LED Pattern
On	Press PWR button for 1 second	RED LED will blink once
Off	Press and hold PWR button for 2 seconds	RED and BLUE LEDs will turn off

Charging the 8100

To charge the 8100, simply connect the AC adapter and plug the adapter into a wall outlet.

NOTE: When the AC Adapter is plugged into the unit, the RED LED will remain ON. When the charge is complete, the BLUE LED will turn on.

The 8100 beacon is a self-contained device, and does not require any additional antennas or components to function in the field. An AC power adapter is required to charge the unit.



Battery Life and Management

Your 8100 is equipped with a built-in battery. The sections below provide some additional details on how to get the best performance from your beacon. Note that this battery cannot be replaced.

Charging the Battery

To charge the battery, plug the AC adapter into the port on the end of the beacon, and plug the AC adapter in the wall. Charging time will vary depending on the state of the battery, but a complete charge should take approximately 3 hours.

Battery Performance

Many factors can influence how long your battery will provide a charge, including how many times the battery has been charged and discharged, ambient temperature, cellular coverage strength, and frequency of locates. The table below provides a rough guideline for what you can expect for battery performance.

Locate frequency	GPS Signal Environment		
	Poor	Average	Good
Every 60 mins	3 days	6 days	9 days
Every 30 mins	2 days	5 days	7 days
Every 15 mins	1 day	3 days	5 days
Every 5 mins	<1 day	1 days	2 days
Every 1 min	3.5 hrs	<1 day	<1 day

LED Patterns

The 8100 has two LEDs (light emitting diodes – essentially lights). During the course of normal operation the LEDs on the 8100 will blink in various patterns that will provide information on cellular status and battery life. See the table below to understand the behaviors.

# of Blinks	RED LED: Cellular Status	BLUE LED: Battery Status
1	Idle	Nearly empty
2	In Use	0 bar
3	No Service/Offline	1 bar
4	-	2 bars
5	-	3 bars
6	-	4 bars

Installing and Mounting the 8100

The 8100 uses the most advanced location technology in the world, but its performance is still subject to the environment surrounding the beacon and the signals can be blocked by metal, thick concrete and other materials that typically block cell phone signals. The accuracy of the location report will increase as the beacon can see more open sky.

The 8100 is not weather or dust resistant, so if you wish to use the beacon outdoors you must enclose the beacon within a weatherproof enclosure, such as a Pelican case or an Otter Box. Standard magnets will not affect the performance of the 8100, so the use of an enclosure with a magnet is acceptable. Take care to avoid placing the 8100 in direct sunlight, as heat can cause damage to the unit.

Using the Web Portal

If the beacon has been registered in your supplier's Mobile Monitoring System correctly, and assigned to your account properly, the system is immediately ready to use. At the time of registration, the operator created an account for you by entering the following minimum data into the Mobile Monitoring System:

Your Name
Your desired Login ID, Password, and secret Passcode
Your Primary Address
Your Primary Phone Number

This information can be edited at any time via your own Portal by navigating to the Administration section and choosing the Profile link from the left hand side.


Logging In

To access your Portal use a web browser on a computer connected to the Internet and navigate to the URL provided by your supplier. Enter your username and password into the appropriate fields on the login screen, then select the login button.

Setup

To use the beacon's functions, you must first add some detail about the vehicle, asset or person that will be associated with the beacon. When you first log in, you should see an image of your beacon, with a [set up now](#) button, similar to the screen below.

Welcome

Last Known Locations for My Items [No Items]	Reminder: You have new beacons to set up:  Beacon ID: 5C44BCB1 set up now
Latest News [No News]	

If no beacons appear on this page, the supplier has not registered the beacon(s) to your account correctly. Contact your supplier.

Click on the [set up now](#) button, and you will be taken to a simple screen where you can enter information about the person or item that will be associated with your tracking beacon. You can select whether you want to associate your beacon with a vehicle, asset or a person by using the drop list that appears at the top of that page. For simplification purposes, this guide will refer to your selection as an "item". Depending on which type of item you choose, you will be shown different choices for descriptive data, such as eye and hair color for people, or make, model and color for vehicles.

If you wish to change the type of item that is associated with your beacon, you can always edit this information later.

If pictures of your asset are available in electronic format they can be added to the system, and can be useful in identifying and recovering the item in case it is stolen or goes missing. To upload a picture, simply type in a descriptive name for the picture, and click on the [browse](#) button to find the picture on your computer's hard drive. You can add up to 3 pictures of your item and each picture should be in JPEG, GIF or BMP format, and should be no more than 500 kb each.

Once you have entered all of the appropriate information, click on the [save](#) button to save the details to the system. You are now ready to test your beacon!

Testing

To test the complete system, a single point locate can be performed. This function will plot the current location of the beacon on a map and verify that all components of the system are functional.

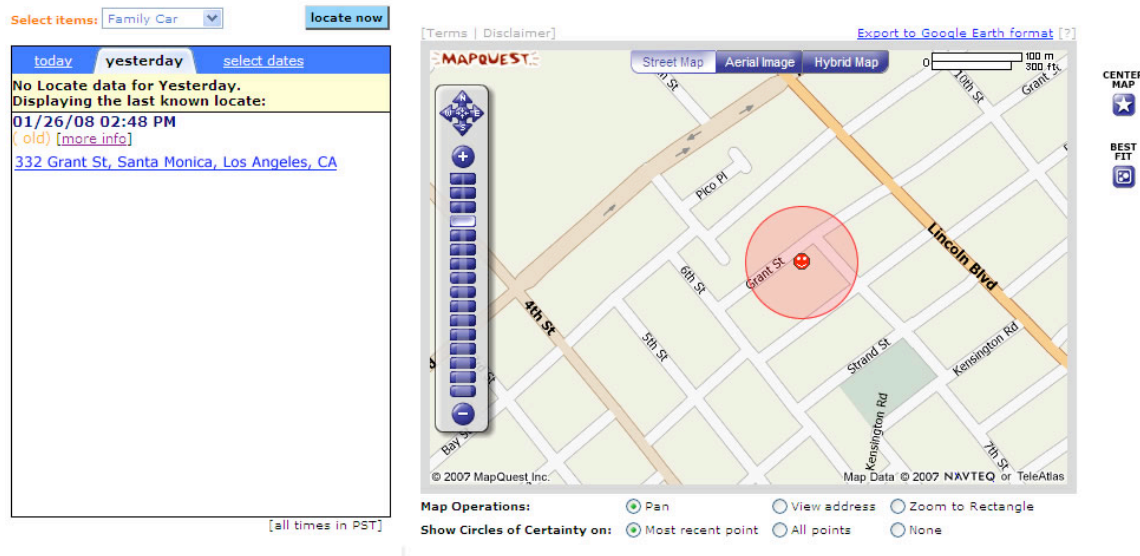
Be sure the beacon is powered and within cellular coverage. See the "Beacon Overview" section for a description of the beacon button and LED functions to ensure that the batteries are charged and the beacon is within cellular coverage.

For the first test, the asset should be outdoors in an open area where GPS signals can be readily received.

NOTE: The 8100 beacon must be activated by your service provider before it will function correctly. If your beacon cannot be located, or if the LED is not reporting correctly, your beacon may not have been activated correctly.

As a full test of your system, select the “Locate” tab from the top navigation of your Portal. Select the name of the item that you wish to locate in the drop list on the left, and click on the “locate now” button. At this point the system will attempt to locate your item for the first time.

Initially the system will be searching for the asset’s location by polling the beacon. This may take more than a minute. When the location is acquired, the corresponding map is displayed with the asset’s location indicated by an icon at its center (Note: there is a selection of available icons to choose from in the My Items details section of the portal). Along with the location is additional information such as the nearest street address and the date and time when the location was established. The map controls allow you to pan and zoom to the desired resolution. If the map correctly displayed your asset’s location within the “Circle of Certainty”, your beacon is functioning correctly and all features of the system will be functional.

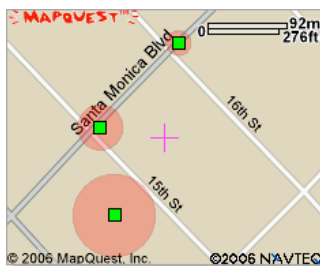


As additional tests, you may want to move the beacon indoors, or into other challenging environments to see how the beacon performs, and how the Circle of Certainty changes in size.

You can locate the beacon again by clicking the “locate now” button once more. Each time you click the locate button, you will consume one of the locate messages included in your service plan. You can use the Message Usage report to determine how many locate messages you have used in the current month (see below).

Circle of Certainty (Location Accuracy)

The Circle of Certainty represents a measure of accuracy for each locate point from your 8100. If you



beacon is in a good signal environment where it can receive abundant GPS signals, the circle around the beacon icon will be small, indicating that the location is highly accurate, and that there is a 95% probability that your beacon is within that circle. As your beacon moves into more challenging GPS environments, the size of the circle will increase, indicating a larger degree of error in the location calculation. While more error may not be ideal for all applications, the advantage is that in these challenging signal environments the 8100 is able to calculate a locate, whereas other GPS devices will simply fail.

The size of the circle will be small or large depending on how the location is being calculated. Rough guidelines are as follows:

Accuracy	Fix Type	Location Calculation	Typical Environment
0 – 50 yards	GPS fix	The beacon is receiving abundant GPS signals	Outdoors
51 to 300 yards	Assisted GPS fix	The beacon is receiving partial GPS signals. The location calculation is being aided by the cellular network.	Partially indoors, or in an obstructed environment (metal roof, heavy foliage, inside a vehicle).
301 yards or greater	Cell tower fix	No GPS signals are available. The location calculation is being completed entirely by the cellular network.	Indoors or in a completely obstructed environment.

Setting up Automated Reports and Alerts

Overview of Alerts

Alerts allow you to remotely program the functionality of your beacon through your web interface and receive email and cell phone text messages automatically from the system. The basic alerts that are available for your beacon become visible automatically after you set up your beacon on the My Items page. Here you can simply click on the [configure](#) link to set up each alert, or you can click on the [edit](#) link in the blue title bar to add additional alerts for each item.

Alerts

The 8100 supports the following alerts:

- Interval Tracking: defines the interval at which the 8100 will automatically report its location. Note that increasing the frequency of the tracking interval will increase the number of messages used, and decrease the battery life. ***The 8100 should be set to report no more than once every 15 minutes. The 8110 can be set to report as frequently as once per minute.***
- Zone Monitoring: set the area where your beacon is allowed or not allowed to be. Each time the beacon reports a position, the system will check to see if it is inside or outside of the zone. Note that an interval tracking scenario must be assigned to the 8100 in order for Zone Monitoring to operate.
- Low Battery Alert: allows your contacts to be alerted when the battery on the 8110 is low and needs to be recharged. **NOTE: 8110 ONLY**

Each alert generally includes some options for the alert, a schedule for when the alert should be available, and a list of contacts who should be notified when the alert is triggered.

Schedules

The Scheduling section allows you to create a variety of schedules to meet your needs. Schedules can be set to run 24 hours a day, 7 days a week, or only on weekdays or weekends between certain times, or even only on certain days of the week.

Contacts

The system allows you to set up different contacts that can be alerted via email or cell phone text message in the event that your beacon violates your set parameters.

To create a Contact, navigate to the Contacts tab, where you should see your basic contact information already in the system. To edit the contact details, simply click on the edit link in the blue bar to the right of your name. Once in the edit screen, change the necessary information and click the save button.

You can add more contacts by simply clicking the add contact button at the top of the Contacts main screen. Fill in the appropriate contact information and click the save button.

If you have subscribed to a monitoring service from an alarm company or monitoring center you can also set the priority order of your contacts. This priority order will tell your monitoring company which contacts to call, and in what order. To set the order, click on the set priority order button, and then drag the contacts into the correct order according to your preferences.

Example Alerts

Below you will find some examples of alerts you could create with the scenario manager module.

- Create an **interval tracking** alert to track your item every 60 minutes from 8am to 5pm, Monday through Friday. You can then choose to have the system automatically send an email or cell phone text message by selecting your contacts, or you can have the system store each locate point by not adding any contacts to your alert.
- Create a **zone** alert around your home from midnight to 7am every day, with notifications being sent to you and your spouse.

Deactivating and Deleting Alerts

If you wish to turn an Alert off, simply navigate to the My Items page, and click on the turn off link to the right of the alert. You will see the icon to the left of the alert name turn from green to red. You can then turn the alert back on by clicking the turn on link.

If you wish to delete the alert you must click on the edit link to the right of the Alerts header in the top of the box, and then click on the trash can icon to the left of the alert.

Reports

You can review your historical data in the Reports section of your portal. Here you can run two different reports:

- **Event Detail:** Provides a detail view for one or more events for the selected item, for a selected time period.
- **Message Usage:** Provides a count of the location messages you have received for the time period you select.

Getting Support

While each feature in the system should be easy to find and use, if you have any questions, you can submit a request for assistance by navigating to the Support link in the upper right corner of the interface. Here you can submit a question, a product idea, or any other type of comment about the system.

Tips for using your system

The following information provides a better understanding of how the Mobile Monitoring System works and why it works as it does. As you gain experience with the system, these tips will help you get the most from the system.

When to call your supplier – and when not to call

Call your supplier any time you need their assistance to remotely locate your item or to recover it if it has been stolen. Find out if they have a policy about calls for other kinds of assistance.

If you choose not to use your Internet accessible mobile monitoring portal, call your supplier any time you need to make changes to your contact information.

If you use the self-serve features available through your portal, do not call your supplier to learn how to use its features and functions. Only call your supplier if you are convinced that the Mobile Monitoring System or your beacon is not working *after* you understand how it is supposed to work.

System Updates

The Mobile Monitoring System is updated from time to time. Updates may include new or improved features as well as revised map data. The web-based nature of the system enables this automated upgrade aspect but it may also cause certain information in this document to be out of date at the time you are using it.

Function Delays

There are many reasons why there are delays in some system functions such as determining the location of your asset. It may take up to two minutes for a one-time locate, and this is normal. The greatest part of the delay is the time it takes for the cellular network to establish a connection with your beacon. Additional delays may come from the GPS position calculation, congestion on the wireless network, and from Internet data traffic congestion.

Reliability and Accuracy of Location Data

Remotely locating your asset can only be done when the asset is within range of cellular network coverage. Your 8100 communicates over one of the most widely available combination of cellular networks in North America but there are still some areas where no coverage exists, typically remote areas. Cellular signals may also be blocked by enclosed spaces such as underground parking garages.

The mapping interface will provide a visual indication of the accuracy of the location by overlaying a transparent red circle on top of each locate – referred to as a “Circle of Certainty”. See page 8 for more details on the Circle of Certainty.

Old Locates

Under most conditions your asset can be located and tracked in “real time”. There are circumstances, however, where the location of the asset cannot be determined immediately. Old locates are generally provided when the asset is outside of cellular range or in conditions that prohibit a location calculation (such as deep underground, or in areas where cellular coverage is weak).

When the mobile monitoring servers cannot establish wireless communications with the asset, the system will report the last location recorded in its database (unless the beacon has never before been located) along with a time stamp indicating when the asset was at that location. A location Type of “LV/Sys” means it is the last valid locate stored in the system, as opposed to being generated in real time by the beacon itself. Alternatively, a location type of “C” (for “Current”) indicates that wireless coverage and location data are available and the device is reporting an up-to-date location.

8100 Specifications

Location Technology:

Qualcomm gpsOne™

Position Accuracy

15 to 30 feet (5 to 10 meters) in open sky

<60 feet (20 meters) 95% of the time

Cellular Communications:

Bands CDMA 900/1900 MHz

Compliance FCC parts 2, 15 and 90

Environmental:

Operating temp -4° to +140° F (-20° to 60° C)

Storage temp -40° to 176° F (-40° to 80° C)

Humidity < 95% non-condensing

Vibration Up to 500Hz random vibration 1.25G rms

Power Supply:

Battery Pack 3.7V Li-Ion (1120 mAh)

Current draw

Standby 100mA

Transmit 750mA max

Mechanical:

Size 3.2" x 1.85" x 0.81" (81mm x 47mm x 20.5mm)

Weight 2.7 oz (77.4g)

For future reference, record your beacon's identification here:

ESN: _____

LIMITED WARRANTY

8100

Limited Warranty

The 8100 is warranted to be free of defects and to operate according to its specifications for a period of one year from the date of purchase. In the event that the device fails to perform in accordance with the specifications, or is otherwise defective in materials or workmanship, Contigo, Inc. (CONTIGO) will repair or replace the unit, at its sole discretion. Replacement or repair does not extend the original warranty period.

Warranty Exclusions

This warranty does not extend to claims arising from misuse of the 8100. If, in the opinion of CONTIGO, the product was mistreated, improperly installed, or exposed to harsh environments, the warranty is null and void. There are no user serviceable parts inside. Opening the housing or removal or alteration of the original serial number label also constitutes voiding of the warranty.

The warranty does not extend to casualty, loss, or damage, nor to use of the product for purposes other than those for which it was designed. Except for the express limited warranty set forth above, CONTIGO grants no warranties, expressed or implied, and specifically disclaims any implied warranty of merchantability, quality, or fitness for a particular purpose.

Limitations of Liability

CONTIGO's entire liability for any breach of the limited warranty contained herein shall be limited to only the repair or replacement of a defective unit. CONTIGO shall not be liable for incidental, consequential or special damages whether or not the company has been advised of the possibility of such damages. This limitation survives the failure of any exclusive remedy.