The Beacon

Preface

Trademarks and Patents

The following are registered trademarks of BI Incorporated:

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Technical Support

For technical support when using BI's monitoring center, contact the BI GuardCenter:

BI GuardCenter
800 Main Street, Suite 501
Anderson, Indiana 46016
1-800-666-3145
FAX 1-765-649-3148

For technical support when using an agency monitoring center, contact BI Incorporated:

BI Incorporated
6400 Lookout Road
Boulder, CO 80301
1-800-241-9924

Waste Electrical and Electronic Equipment (WEEE)

All electrical products that reach the duration of their functioning capabilities must be returned to BI Incorporated for recycling.

United States FCC, Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications made by the user to this equipment that are not expressly approved by BI Incorporated could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and beacon.

Connect the equipment into an outlet on a circuit different from that to which the beacon is connected.

Consult the dealer or an experienced radio/TV technician for help.

Industry Canada Certification

The equipment represented herein meets Industry Canada procedural and specification requirements for certification. The certification identification number is displayed on the equipment model identification plate prefixed by the acronym *IC*. The acronym "IC" only signifies that the Industry Canada technical specifications were met.

Operation and EME Exposure

The equipment represented herein is designed to comply with the following national and international standards and guidelines regarding exposure of human beings to radio frequency electromagnetic energy (EME):

United States Federal Communications Commission, Code of Federal Regulations; 47 CFR part 2 sub-part J.

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE). C95. 1-1992.

Institute of Electrical and Electronics Engineers (IEEE). C95. 1-1999 Edition.

International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998.

Ministry of Health (Canada). Safety Code 6. Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3 kHz or 300 GHz, 1999.

Australian Communications Authority Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard 2003.

ANATEL, Brasil Regulatory Authority, Resolution 303 (July 2, 2002) "Regulation of the limitation of exposure to electrical, magnetic, and electromagnetic fields in the radio frequency range between 9 kHz and 300 GHz." "Attachment to Resolution 303 from July 2, 2002."

Electromagnetic Interference/Compatibility

Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed or otherwise configured for electromagnetic compatibility.

Facilities

To avoid electromagnetic interference and/or compatibility conflicts, obey all facility posted notices about cellular phones. Hospitals or health care facilities may be using equipment that is sensitive to external RF energy.

Aircraft

Per FAA regulations cellular phones should be turned off when on board an aircraft. Any use of a radio product must be in accordance with applicable regulations per airline crew instructions.

Medical Devices

If a person using the ExacuTrack One system also uses any personal medical devices (i.e. pacemaker, hearing aid, etc.), consult the manufacturer of the personal medical device to determine if it is adequately shielded from RF energy. A physician may be able to assist in obtaining this information.

Operational Warnings

There are certain areas where you want to avoid operation of any radio product.

Potentially Explosive Atmospheres

Turn off any radio product prior to entering any area with a potentially explosive atmosphere unless it is a radio product type especially qualified for use as "Intrinsically Safe" (for example, Factory Mutual, CSA, or UL-approved). Do not remove, install, or charge batteries in such areas. Sparks in a potentially explosive atmosphere can cause an explosion or fire resulting in bodily injury or even death.

Note: The areas with potentially explosive atmospheres referred to above include fueling areas, such as below decks on boats, fuel or chemical transfer or storage facilities, areas where the air contains chemicals or particles, such as grain, dust or metal powders, and any other area where you would normally be advised to turn off your vehicle engine. Areas with potentially explosive atmospheres are often but not always posted.

Blasting Caps and Areas

To avoid possible interference with blasting operations, turn off radio products when near electrical blasting caps, in a blasting area, or in areas posted: "Turn off two-way radio." Obey all signs and instructions.

The tracking unit operates in unison with up to three beacons that continuously send radio frequency (RF) signals to the tracking unit. The tracking unit then detects the signal, ultimately determining if a client is within the confinements of a residence. Because GPS acquisition consumes 75 percent of the tracking unit's battery, beacons help conserve the battery by allowing the tracker's GPS acquisition to idle. Using the beacon during curfew hours also eliminates the potential of GPS drift, ensuring the client is within the required confines without relying solely on GPS.

NOTE: *You can elect to use the tracking unit without a beacon as well.*

In addition to motion and tamper detection, the beacon houses two replaceable D-Cell batteries. You can place a beacon anywhere from an individual residency to a work environment. The ExacuTrack One tracking unit picks up the beacon's signal which contains the following information:

- Identification number
- Tamper status
- Battery condition
- Motion detection

Features

- Water-Resistant Case
- Field-Replaceable Batteries
- Motion Detection
- Non-Commercial Radio Frequency Transmissions
- Easy Installation
- Multiple Tamper Detection
- Abandoned Tracker Locator Capability
- Three Beacons for Multiple Curfew Locations

Curfew Schedules

A curfew schedule is a specified time-period when the client must remain within range of a specific beacon—whether the beacon is at home, work, school, etc. If a client comes within range of the beacon during a scheduled curfew period, the tracking unit sends a *Beacon Enter* message to the central monitoring computer and enters a "sleep mode" to save battery power. During this power saving mode, the tracking unit suspends GPS acquisition and only reports to the central monitoring computer according to the Max Callback Interval (see page 15). If the client leaves the beacon's range following a curfew period, the tracking unit sends a *Beacon Leave* message to the central monitoring computer and begins searching for a GPS signal (see page 15).

Tamper Detection

The beacon includes an internal sensor that detects attempts to tamper with the case.

Motion Detection

The beacon contains motion sensors inside the casing to deter the client from relocating the unit. If the client moves the beacon, it begins recording the amount of time the unit is in motion and starts transmitting a motion detection signal.

Variable Leave Window

When a client leaves the beacon's range, he or she must be away for a specified amount of time before the tracking unit acknowledges a *Leave* event and begins searching for a location fix. This period of time, known as the **Leave Window**, is configurable from 2 to 10 minutes, in 1-minute increments.

Range Considerations

The following table displays the range options for each individual beacon. The **Distance** column refers to the amount of separation allowed between the tracking unit and the beacon before the tracking unit sends a *Beacon Leave* message to the central monitoring computer. The **Level** column corresponds to a specific distance.

Level	Distance
High	150ft
Medium	75ft
Low	35ft

*The distances listed above are approximations that were established in an open field environment with no obstructions between the beacon and the tracking unit.

Because many factors affect radio frequency signal range, it is helpful to understand the possible external elements that can alter range signals. Signal ranges can be affected by equipment elevation and obstructions between the beacon and the tracking unit.

Obstructions

Obstructions between the beacon and the tracking unit may reduce the range or reception. Obstructions can be minor, such as a wall constructed with wood and plaster that absorb some of the signal; obstructions can also be significant, such as metallic surfaces or objects. For example, kitchen appliances may deflect the signal. Certain housing construction materials (e.g., metallized insulation) can also obstruct the signal.

Installation and Removal

The following section describes beacon installation, removal, cleaning, and battery replacement instructions.

Placement Guidelines

To properly install the beacon, you must first have enough space and a sturdy, level surface (such as a table or counter).

Review the following guidelines to ensure proper placement:

- Place the beacon three feet above the floor. Do not place the beacon directly on the floor.
- Ensure the beacon is not on top of or next to metal items, such as appliances or metal shelves.
- Do not place anything on top of the beacon.

- Do not place the beacon in front of a mirror.
- Do not place the beacon in direct sunlight.
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To install the beacon

1. Insert 2 standard D-Cell batteries into the bottom of the beacon.
2. Place the battery cover over the bottom of the beacon.
3. Secure the battery cover with the provided screw.
4. Place the beacon in the selected location.

To remove the beacon

1. Remove the beacon from the client's residence.
2. Remove the screw on the battery cover to remove the batteries.
3. Return the unit to inventory.

Cleaning and Storage

After removing the beacon from the client's residence, clean the unit by wiping the case with a soft cloth. You can use Lysol as a disinfectant if needed. Do not use Pinesol or any cleaning products containing pine oil as these solvents may damage the plastic body. Store the beacon in its original box.