

PATRIOT WIRELESS

TOTALLY WIRELESS TRACKING

The PATRIOT™ WIRELESS represents a whole new dimension in affordable tracking technology, one that offers a totally wireless, full 6 Degree-of-Freedom (6DOF) solution. The system has speed, ease-of-use via an intuitive Graphical User Interface (GUI), and is capable of tracking up to four independent markers. PATRIOT WIRELESS offers increased stability while providing consistent high-quality data all while being completely untethered.

Wireless

Totally wireless markers are completely self-contained, each housing a high-capacity, rechargeable lithium polymer battery that provides several hours of power. Each system may track up to four markers independently.

Reduced Distortion

The system is capable of reducing any distortion effects normally seen with electromagnetic systems because of the designated distance of marker to receptor, and the enhanced signal-to-noise ratio.

Scalable

Two receptor channels are available on the base product which is upgradeable from one to four markers.

Communication Interface

PATRIOT WIRELESS operates via both RS-232 serial interface and USB.

Multiple User Definable Profiles

The GUI allows for four independent user-definable profiles for setting system parameters such as filtering, output formats, coordinate rotations and much more.

Multiple Output Formats

Users may select position in Cartesian coordinates (English or Metric); orientation in direction cosines, Euler angles or quaternions.

Angular Coverage

The receivers are all-attitude with no limits.

Drift-Free

Solid state electronics.

The Frontrunner in Wireless Magnetic Tracking Technology—

PATRIOT WIRELESS is a true wireless tracking system. The system is capable of tracking up to four markers for full 6DOF solutions over large areas. Each wireless marker comes standard with replaceable and rechargeable lithium battery assembly. For ultimate versatility, markers are also available with an optional power pack adapter which provides flying power leads for integration into your existing power source.

Easy, Intuitive User Interface

PATRIOT WIRELESS comes standard with a GUI for Microsoft Windows® and a comprehensive, easy-to-use Software Developers Kit (SDK). The GUI allows four independent user definable profiles for setting system parameters such as filtering, output formats, coordinate rotations and much more. This is a valuable feature for multiple applications or users. For visualization, an integrated motion box provides navigable points of view and can include text data. Additional features include a data record/playback component, plus the ability to quickly export data via Microsoft “Named Pipe”.

A/C Magnetics: Increased Stability, Resolution, Speed and Range

Incorporating state-of-the-art Digital Signal Processor (DSP) electronics in concert with A/C magnetics provides the user with increased range, stability, resolution and speed. The system is essentially unaffected by facility power grids or electric power motors and update rates are always maintained, allowing for consistent, high-quality data.

APPLICATIONS

Biomechanics, virtual reality, neuroscience, sports motion analysis and more!



PATRIOT WIRELESS

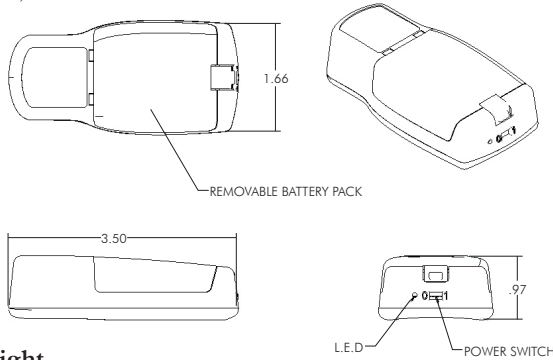
COMPONENTS

System Electronics Unit (SEU)

The SEU contains the hardware and software necessary to sense the magnetic fields generated by the markers, compute position and orientation, and interface with the host computer via RS-232 or USB.

Marker

Markers weigh 2.8 ounces and can be easily attached to the body or object as needed.



Weight

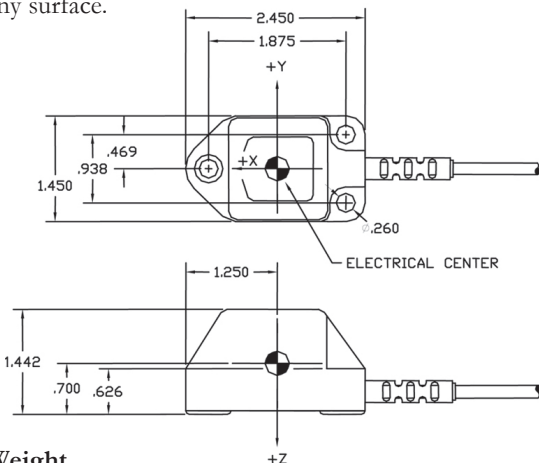
Wireless Marker

2.8 ounces (79.4gm)

Measurement in inches

Receptor

This lightweight, small cube can easily be mounted to almost any surface.



Weight

Receptor

3.2 ounces (90.7gm)

Measurement in inches

Battery Charger

Single high-capacity battery charger included with each marker purchased.

Software Tools

GUI and SDK included

USB drivers for Microsoft Windows® XP/Vista/Win7 included (32-bit and 64-bit). Linux® - open-source application available

POLHEMUS
INNOVATION IN MOTION™

Polhemus is a Good Manufacturing Practices (GMP) Contract Manufacturer under U.S. FDA Regulations. We are not a manufacturer of Medical Devices. Polhemus systems are not certified for medical or bio-medical use. Any references to medical or bio-medical use are examples of what medical companies have done with the Products after they have obtained all necessary or appropriate medical certifications. The end user/OEM/VAR must comply with all pertinent FDA/CE regulations pertaining to the development and sale of medical devices and all other regulatory requirements.

SPECIFICATIONS

The system will operate at the specified performance in an environment free of highly conductive metals such as aluminum and copper.

Update Rate (simultaneous sampling)

50 Hz/marker

Latency

Approximately 20 milliseconds

Number of Markers

One to four

Number of Receptors

One to two

Static Accuracy

1.0 degree and 0.3 inch (0.75 cm) using one marker and one receptor at 30 inches (76.2 cm). Accuracy is installation dependent, typical accuracy may normally result in 1 to 3 degrees and 1 to 3 inches (2.54 cm to 7.62 cm).

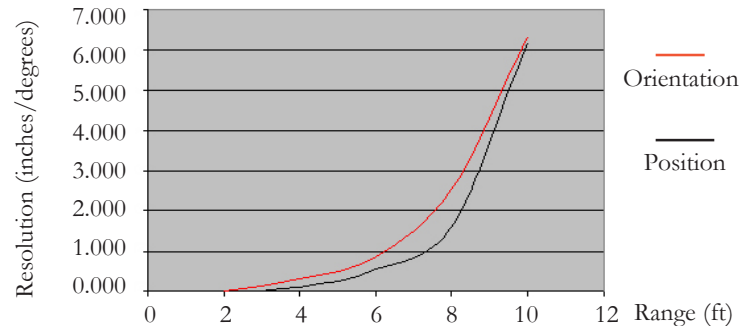
Interface

RS-232 with selectable baud rates up to 115.2 K USB 2.0 (high speed)

Range vs. Resolution - Two Receptors equally spaced from Marker

Accuracy is distance dependent. An operating range of 24 linear feet (7.3 m) (i.e. hallway configuration) is possible with two receptors.

Graph below shows typical results.



Marker-Receptor Range (feet)	Position Resolution (inches)	Orientation Resolution (degrees)
2	0.006	0.021
4	0.109	0.296
6	0.537	0.864
8	1.608	2.534
10	6.195	6.356

Data Format

Operator selectable ASCII or IEEE 754 binary; English/Metric units

Operating Temperature

10°C to 40°C at a relative humidity of 10% to 95%, noncondensing

Power Requirements

100-240 VAC, 50-60Hz, single phase, 10W

Regulatory

FCC Part 15, class A

CE: EN61326-1: 1997/A1:1998/A2:2001/A3:2003 emission

EN61326-1: 1997/A1:1998/A2:2001/A3:2003 Immunity

*Large metallic objects, such as desks or cabinets, located near the source or sensor, may adversely affect the performance of the system.

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