POLHEMUS
INNOVATION IN MOTION™

LIBERTY LATUS

Large Area Tracking Untethered System

TOTALLY WIRELESS TRACKING

The LIBERTY™ LATUS™ (Large Area Tracking Untethered System) represents a whole new dimension in 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 12 independent markers over large areas. Because of the improved signal-to-noise ratios, LIBERTY LATUS offers increased stability while providing consistent high quality data, all while being completely untethered.

▶ FEATURES

Wireless
Totally wireless markers are completely self-contained, each housing a lithium polymer battery assembly that provides up to 2 hours of power. Each system may track up to 12 markers independently.

Reduced Distortion
The system is capable of reducing any distortion effects normally seen with long range electromagnetic systems because of its short range distributed receptor architecture, and enhanced signal-to-noise ratio.

Scalable
Four receptor channels are available on the base product; the system is upgradeable to 8, 12, or 16 receptor channels within the same chassis by having additional circuit boards installed.

Communications Interface
LIBERTY LATUS communicates via RS-232 serial or USB interface. Both are included in the base unit.

Multiple User Definable Profiles
The GUI allows for three 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 ONLY WIRELESS CHOICE

Unique in Wireless Tracking Technology
LIBERTY LATUS provides truly wireless tracking. There are absolutely no wires - each marker is self-contained. The system is capable of tracking up to 12 markers for full 6DOF solutions over large areas. Each marker is tracked in space by a receptor that covers up to an 8 foot (2.44m) diameter. Each system is capable of connecting up to 16 receptors for total coverage of hundreds of square feet. Systems may also be concatenated for even larger area coverage. All wireless communication is via a proprietary magnetic data link.

Easy, Intuitive User Interface
LIBERTY LATUS comes standard with a GUI for Microsoft Windows®and a comprehensive, easy-to-use Software Developers Kit (SDK). The GUI allows three 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".

AC Magnetics: Increased Stability, Resolution, Speed and Range
Incorporating state of the art Digital Signal Processor (DSP) electronics in concert with AC magnetics provides the user with improved signal-to-noise ratios which increase range, stability, resolution and speed. The system is essentially unaffected by facility power grids or electric power motors, and provides update rates of 94 or 188 Hz measurements per second maintained for all markers, allowing for consistent, high quality data.

▶ APPLICATIONS

Limited only by your imagination!

▶ 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
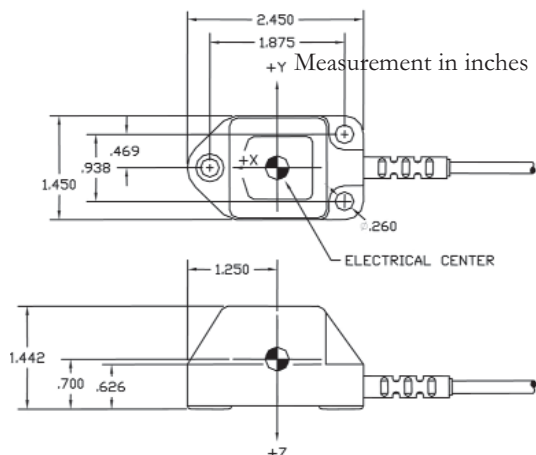Markers weigh 2 ounces and can easily attach to the body or object as needed.

Measurement in inches
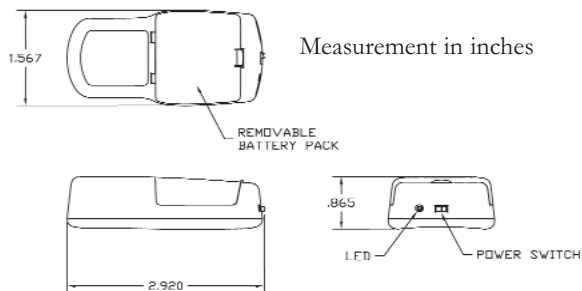
Weight
Wireless Marker
2 ounces (56.7gm)

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

Measurement in inches

Weight
Receptor
3.2 ounces (90.7gm)

Battery Charger
The QUAD Charger is capable of charging four battery assemblies simultaneously. Charge time is approximately 2 hours.

Software Tools
GUI and SDK included. USB drivers for Microsoft Windows® XP/Vista/Win7 included
Linux®- open-source application available

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▶ SPECIFICATIONS

Update Rate (simultaneous sampling)
188Hz/Marker for 1 to 8 Markers
94Hz/Marker for 9 to 12 Markers

Latency
Approximately 5 milliseconds

Number of Wireless Markers
1 - 12

### Number of Receptors
1 - 16

Static Accuracy
0.5 degree and 0.1 inch (0.254cm) using 1 marker and 1 receptor at 30 inches (76.2cm). Accuracy is installation dependent, typical accuracy may normally result in 1 to 3 degrees and 1 to 3 inches (2.54cm to 7.62cm).

Interface
USB; RS-232 to 115,200 Baud rate; both are standard

Range vs. Resolution - 2 Receptors equally spaced from Marker

Resolution (inches/degrees) vs. Range(feet)
— Orientation
— Position
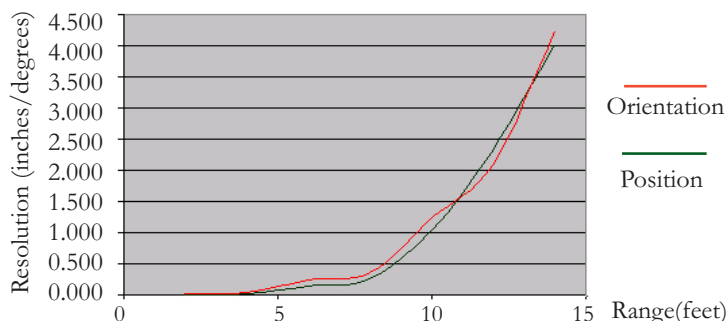
Marker-Receptor Range (feet)	Position Resolution (inches)	Orientation Resolution (degrees)
2	0.005	0.020
4	0.015	0.046
6	0.144	0.248
8	0.262	0.355
10	1.052	1.239
12	2.347	2.106
14	4.027	4.235

Multiple Systems
Multiple systems may be concatenated to extend range

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

External Event Hardware Input
Reportable in output data stream

Output Sync Pulse
TTL frame sync output

Operating Temperature
0ºC to 50ºC at a relative humidity of 10% to 95%, noncondensing

Power Requirements
100-240 VAC, 50-60 Hz, single phase, 50 W

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.

www.polhemus.com

ISO 9001 REGISTERED