

G4

6DOF WIRELESS Electromagnetic Tracker

THE PORTABLE TRACKER THAT FITS IN YOUR POCKET!

With a system electronics unit the size of most mobile phones, G4™ harnesses the powerful performance that only A/C electromagnetic technology offers. Sporting a sleek, compact design, G4 allows for uninhibited movement. It boasts true 6 Degree-Of-Freedom technology, and delivers consistent, high-quality data, without the complications of hybrid technologies.

FEATURES

WIRELESS COMMUNICATION

Position and orientation data is sent wirelessly to the PC via simple Radio Frequency (RF) links

COMPACT SIZE

Hub is lightweight, portable, and can be belt-worn

10+ HOURS OF BATTERY LIFE*

Long-life battery is easily recharged via wall charger or a PC USB port

HIGH SPEED AND ACCURATE

Each individual sensor samples at 120 times per second

SCALABLE

Capable of increasing range and number of people or objects tracked by adding hardware components

AUTO TRACKING RECOGNITION

User-friendly system allows you to set up quickly, turn the system on and start tracking

MULTIPLE OUTPUT FORMATS

Select position in Cartesian coordinates (English or metric); orientation in Euler angles (degrees or radians) or quaternions

ZERO DRIFT

Not an Inertial Measurement Unit (IMU) based system—drift-free, solid state performance

*As with all batteries, capacity (run-time) will diminish over time due to battery age and charging cycles.



THE LIGHTWEIGHT AND PORTABLE G4 HUB

WIRELESS MATTERS

G4 is a wireless data transmitting tracking system—enabling you to move freely, without being bound by cumbersome tether cables. Each G4 hub is capable of accepting up to three sensors, each operating at 120 Hz, and up to eight discrete digital inputs for event triggers. Sensor data calculations are transmitted directly to the PC, making your application efficient, with a seamless stream of drift-free data.

READY-SET-TRACK

G4 was designed with simplicity in mind. The result is a system that's both intuitive and user-friendly. G4 comes equipped with a comprehensive Software Development Kit (SDK), thoughtfully engineered so your implementations are up and running fast.

SCALABLE + VERSATILE = LONG-TERM VALUE

G4 allows for full 6DOF solutions over large areas. As your application needs evolve, you can continue to expand G4's capabilities to meet your needs. Each individual hub is capable of tracking up to three sensors. Track additional objects or people by increasing the number of hubs. To increase the range of coverage, simply add additional sources. This versatility makes G4 a scalable, long-term tracking solution.

APPLICATIONS

G4 paves the way for cutting-edge solutions and advancement in the areas of training and simulation, rehabilitation and physical therapy, biomechanical and sports analysis, and virtual or augmented reality.

ACCESSORIES

PowerTRAK 360™ is an optional accessory for G4. This 3D pointing device is ideal for CAVES and other 3D mouse applications.



SENSOR | HUB | SOURCE | POWERTRAK 360

COMPONENTS

The standard G⁴ system includes a System Electronics Unit (hub), one sensor, one source, and one RF/USB module. You can easily expand the system's capabilities by adding additional sensors, sources, and hubs.

SYSTEM ELECTRONICS UNIT (HUB)

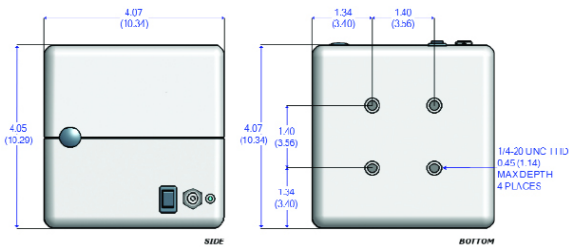
The hub contains embedded hardware and software necessary to compute the position and orientation of each sensor and wirelessly transmit this data to your PC. Approx. 4.2 in (10.6 cm) L x 0.75 in (1.9 cm) W x 2.6 in (6.6 cm) H

WEIGHT

Approx. 4 oz (114 g)

SOURCE

The source is the system's reference frame for sensor measurements and the magnetic field generator. Measurement in inches (cm)

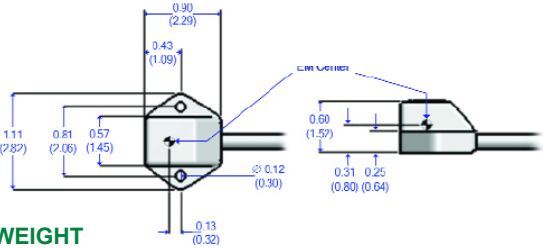


WEIGHT

TX4: 1.60 lb (726 g) Thread size: 1/4" x 20

SENSOR

A lightweight, small cube, the sensor's position and orientation is precisely measured as it is moved. Measurement in inches (cm)



WEIGHT

0.32 oz (9.1 g)

POLHEMUS
INNOVATION IN MOTION™

POLHEMUS.COM

40 Hercules Drive • PO Box 560 • Colchester, Vermont 05446-0560
US & Canada: 800.357.4777 • 802.655.3159 • Fax: 802.655.1439

G⁴ is a trademark of Polhemus
Copyright © 2010 Polhemus, Rev. March 2013 ST: MSO84
Microsoft Windows is a registered trademark of Microsoft Corporation.
Linux is a registered trademark of Linus Torvalds.

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

UPDATE RATE

120 Hz per sensor, simultaneous sampling

LATENCY

Less than 10 milliseconds in optimal RF communication conditions

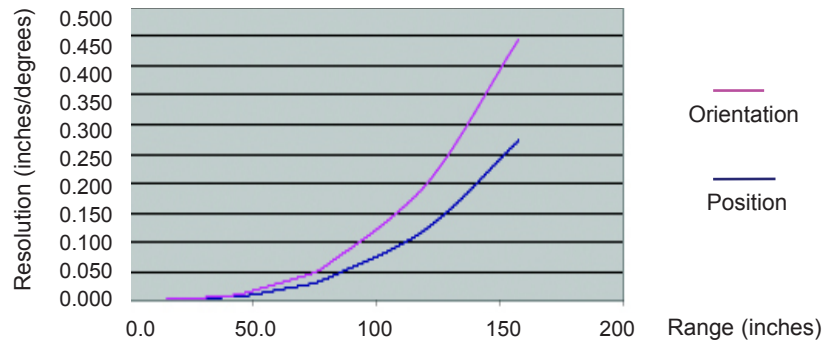
STATIC ACCURACY

Range	Orientation	Position
1 meter/3.3 ft	0.50 degrees RMS	0.08 inches/0.20 cm RMS
2 meter/6.5 ft	0.75 degrees RMS	0.25 inches/0.64 cm RMS
3 meter/9.8 ft	1.00 degrees RMS	0.50 inches/1.27 cm RMS

INTERFACE

Proprietary RF link; 2.4 GHz frequency-hopping architecture

RESOLUTION VS. RANGE



Range (inches)	Position Resolution (inches)	Orientation Resolution (degrees)
12.0	0.0003	0.0008
24.0	0.0010	0.0020
48.0	0.0080	0.013
96.0	0.0610	0.100

SOFTWARE TOOLS

PiMgr GUI for Microsoft Windows®
GUI for Linux®
Setup and Configuration Utilities for Microsoft Windows® and Linux®
PDI SDK for Microsoft Windows®
C Programming APIs for Microsoft Windows® and Linux®

OPERATING TEMPERATURE

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

POWER REQUIREMENTS

Source: 5 volt, 1 amp/hub: 5 volt, 500 ma/RF dongle: 5 volt, 30 ma
Internal battery, rechargeable via USB or included power supply

REGULATORY

FCC Part 15, Class B
EN61326-1: 2006 Emissions
EN61326-1: 2006 Immunity
2.4 GHz Radio Approval:
FCC Part 15
EN 301489-1 V1.8:2008 Emissions
IC RSS 210
EN 301489-3 V.1:2002 Immunity

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