

# $\mu$ POINT™ Gyro-Stabilized Digital Magnetic Compass

Big in performance, small in size. A new benchmark for embedded electronic azimuth sensors.



actual size

- Gyro-stabilized from magnetic disturbances
- Tilt-compensated digital magnetic compass
- Azimuth accuracy  $0.5^\circ$ , inclination accuracy  $0.2^\circ$
- Data rates to 25 Hz.
- Power management functions
- High shock tolerance
- User selectable magnetic compensation options
- Auto declination using built-in World Magnetic Model
- Patents pending

The  $\mu$ POINT™ (micropoint) digital magnetic compass is a new generation azimuth sensor that combines the latest in gyro technology with advanced digital magnetic compass hardware and software. This device is the result of over 10 years technology development and is based on our proven designs first used in our patented DRM®-III.

A Micromachined Electro-Mechanical Systems (MEMS) silicon rate gyro built into the Z-axis provides inertial stabilization from magnetic disturbances. Our patent-pending algorithm combines magnetic azimuth and gyro data to minimize magnetic transients. Gyro and compass data are blended so the user does not experience disturbances to

azimuth caused by temporary magnetic interference. Data from three silicon magnetometers and three MEMS accelerometers are combined to provide magnetic compass azimuth. Azimuth data is tilt compensated to correct for the influence of the earth's magnetic field dip angle. The World Magnetic Model is built-in so that the compass can automatically provide azimuth referenced to true north. A magnetic anomaly alarm can be used to detect persistent magnetic disturbances at a user-defined level.

Point Research binary data protocol provides extensive options for the system integrator including power management and corrections for both hard and soft iron effects. An

evaluation kit with demonstration software is available.  $\mu$ POINT™ options include, CMOS level serial data interface, NMEA data, connector options, user-defined coordinate reference, and compass only configuration without gyro.

## Applications

- Laser range finders
- Weapon aiming
- Navigation
- Robotic vehicles
- Optical instruments
- Antenna alignment
- Head tracking

# Honeywell

17150 Newhope Street, Suite 709, Fountain Valley, California 92708  
(714) 557-6180 FAX (714) 557-5175 [www.magneticsensors.com](http://www.magneticsensors.com)

# μPOINT™ Gyro-Stabilized Digital Magnetic Compass

## SPECIFICATIONS

Parameter	Value
Azimuth accuracy	0.5° RMS, 0.1° resolution
Inclination (pitch and roll) accuracy	0.2° RMS, 0.1° resolution
Inclination range	± 80°
Angular rate range	±300° /second
Magnetic field range	1 Gauss total
Size	1.00" x 1.04" x 0.54" (25.4mm x 26.4mm x 13.7 mm)
Weight	0.66 ounces (18.6 grams)
Temperature range	-40° to +85° C
Shock	>1000 Gs
Power	
Continuous	0.41 watts
Standby	0.22 watts
Supply voltage	5 v. DC ±5%
Data refresh rate	Up to 25 Hz.
Serial data interface	RS-232C levels, 9.6K-38.4 K b/s
Connector	4 pin, 0.050" (1.23mm) pitch header
Mounting	3 ea. #2-56 UNC brass screws

## OPTIONS

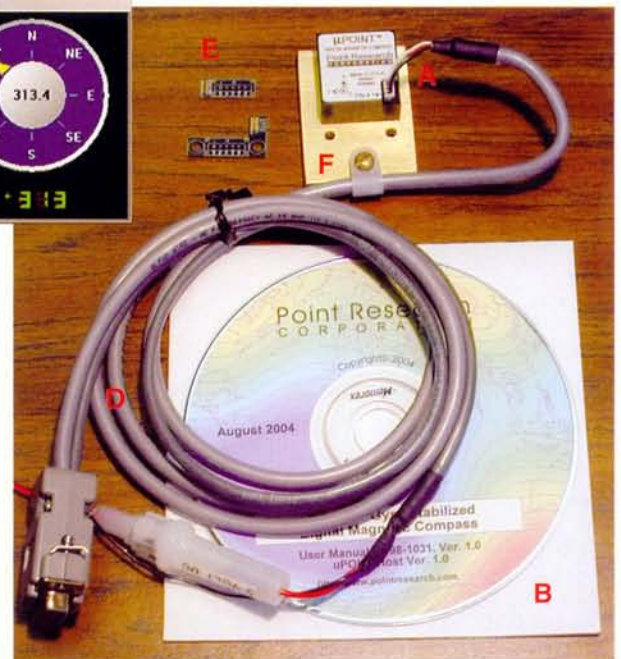
- CMOS serial data levels
- Compass only, without gyro
- NMEA0183 sentence HDG and HDT
- Customer defined coordinate orientation

## FEATURES

- Gyro-stabilized magnetic compass azimuth includes on/off control for gyro
- World Magnetic Model provides declination for true azimuth
- Magnetic compensation for hard and soft iron
- User adjustable magnetic anomaly alarm
- Inclination (pitch and roll) data output
- Raw data output: 3 axis magnetic, 3 axis acceleration, and temperature
- User adjustable data refresh and baud rates
- Field re-programmable flash memory
- Continuous mode to 25 Hz. refresh
- Low power duty cycle mode up to 2 Hz.
- Standby mode for single data samples

## ENGINEERING EVALUATION KIT

- μPOINT™ compass with gyro (A)
- Programmer / User manual (B) includes binary protocol definition
- Windows® host test program with data recording (B) and graphic data display (C)
- Computer interface and power cable (D), standard DB-9 serial
- Alternate connector attachment boards (E) for user built interface to embedded processor
- Brass baseplate with mounting screws and strain relief (F) for convenience in testing and handling
- Technical support via phone or email



Specifications and features subject to change without notice

Revision of August 2004

# Honeywell

17150 Newhope Street, Suite 709, Fountain Valley, California 92708  
(714) 557-6180 FAX (714) 557-5175 www.magneticsensors.com