DRM®-5
Dead Reckoning Module

Honeywell

Advanced Information

The Dead Reckoning Module (DRM®) is a miniature, self-contained, electronic navigation unit that provides the user's position relative to an initialization point. Dead reckoning (DR) and GPS data are blended by an internal Kalman filter. When GPS is available, the DR functions are automatically calibrated continuously. When GPS is unavailable, dead reckoning takes over. Unlike strapdown inertial systems, the DRM® error characteristics are independent of time, and depend primarily on distance traveled.

Advanced motion classification algorithms or SmartPedometry™ analyze movement and compensate when the user is moving backwards, sideways, running, crawling, or just "fidgeting" in place. An automatic compass orientation algorithm provides accurate azimuth information when the user is upright or prone. The low power consumption makes DRM® -5 practical for integration with wearable computers. MEMS gyros compensate for transient magnetic disturbances. A barometric altimeter provides vertical position accurate enough to identify the floor of a building.

The DRM® -5 unit is designed to be integrated with other electronics, such as military GPS receivers. Firmware is re-programmable in place by a host system. Successful systems integration of DRM® in past programs has demonstrated that a reliable navigation supplement for personnel does *not* require sensors on the legs or feet, and can readily co-exist with equipment normally carried by a soldier or other user. Applications for the DRM® -5 include military (self-navigation, targeting situational awareness), public safety (firemen, policemen, disaster relief operations), and security guards.

FEATURES & BENEFITS

- State-of-the-art dead reckoning device for personnel navigation. Made in U.S.A.
- Continuous, gap-free, personnel position location, with or without GPS. Typical accuracy 1% to 2% distance traveled
- Internal Kalman filter integrates dead reckoning position with external GPS, including existing military receivers
- Digital compass azimuth accuracy better than 1°
- Unique compass algorithm provides correct azimuth for upright or prone user
- Built-in magnetic model for accurate true direction anywhere (automatic declination)
- Motion classification and adaptive algorithms maximize accuracy under difficult conditions
- Sensors include 3 gyros, 3 accelerometers, 3 magnetometers, and baro altimeter
- Power consumption less than 1 watt is easy on man-portable battery power
- Available as a circuit card assembly for customer integration, or complete Evaluation Kit

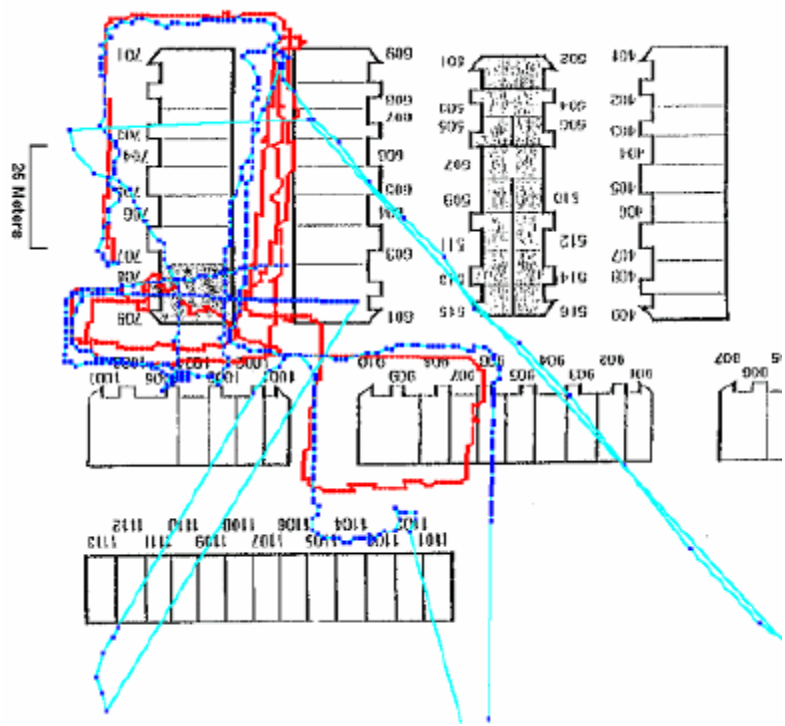
DRM®-5

SPECIFICATIONS

Parameter	Value
Horizontal Position Accuracy	1% to 2% of distance traveled from last fix
Compass Azimuth Accuracy	1° RMS, 0.1° resolution
Vertical Position Accuracy	1.5 meters RMS
GPS receiver	16-channel, C/A code
Mechanical dimensions	3.4” x 2” x 0.6”
Weight *	1.5 Ounces
Temperature Range	-40° to +85° C
Power	<1 watt
Standard Battery	Li-Ion 2 cell, 8 hr. run time
Data Refresh Rate	Up to 4 Hz.
Serial Data Interface	RS-232C or CMOS levels 9.6K to 38.4K b/s
Connector *	10 pin (2x5), 2mm pitch header
Mounting *	4 ea. #4-40 brass screws

* Circuit card assembly only

The DRM®-5 Engineering Evaluation Kit includes the electronics mounted in a waterproof enclosure on a belt that can be securely attached to the user. Also included is test software for a customer-provided Windows-compatible host computer that interfaces to the DRM-5 through a standard RS232 serial port. A rechargeable lithium-ion battery provides up to 8 hours of operation, and the charger is included. An external GPS antenna is provided for the 16-channel civilian GPS receiver. The Evaluation Kit can be used as a stand-alone data logger and recorder.”



Red = DRM aided True path is close to red

Blue = GPS alone, outages inside and near buildings

FIND OUT MORE

For more information on Honeywell’s Magnetic Sensors, Compassing, Magnetometry and Dead Reckoning visit us online at www.honeywell.com/magneticsensors or contact us at 800-323-8295 (763-954-2474 internationally).

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