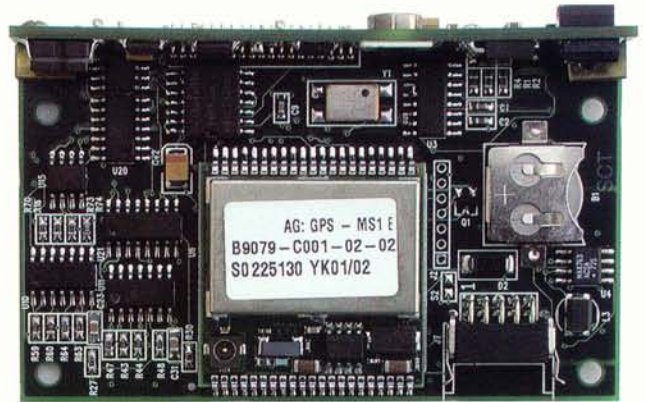


# DRM<sup>®</sup>-III OEM Dead Reckoning Module for Personnel Positioning

Accurate navigation for personnel on foot: our light-weight, easy-to use, DRM<sup>®</sup> goes where GPS doesn't.



The first practical replacement for compass and pace counting for navigation on foot, our patented DRM<sup>®</sup> works where GPS is inaccurate or unavailable. Kalman filter firmware blends DR and GPS to provide an optimal position fix. No additional infrastructure or network is required. Used in the U.S. Army Land Warrior program.



DRM<sup>®</sup>-III OEM Module (actual size)

- Continuous personnel position location with or without GPS.
- Built-In 12 channel GPS receiver and Windows<sup>®</sup> test software for convenient evaluation.
- Unaffected by urban canyons, nearby buildings, heavy foliage, or other situations which interfere with GPS. Works inside of many buildings.
- No infrastructure required; no pre-installed beacons, markers, or reference sites needed
- Uses proven, award-winning Dead Reckoning Module (DRM<sup>®</sup>) developed for the U.S. Army.
- Third generation product, designed exclusively for personnel on foot. Accurate altimeter and compass functions. Data logging capacity.
- Original Equipment Manufacturer's (OEM) version includes mating connectors.

The Dead Reckoning Module (DRM<sup>®</sup>) is a miniature, self-contained, electronic navigation unit that provides the user's position relative to an initialization point. The DRM<sup>®</sup> is the first commercially available practical implementation of a drift-free dead reckoning navigation system for use by personnel on foot. It is specifically designed to supplement GPS receivers during signal outages. You still know where personnel are located even when GPS is blocked by nearby buildings, heavy foliage, or even inside many structures. The DRM contains a tilt-compensated magnetic compass, electronic pedometer and barometric altimeter to provide a continuous deduced position. A microprocessor performs dead reckoning calculations and includes a Kalman filter to combine the dead reckoning data with GPS data when it is available. The filter and other proprietary algorithms use GPS data to calibrate dead reckoning sensors for a typical dead reckoning

accuracy of 2% to 5% of distance traveled, entirely without GPS. Options for the system integrator include a selection of voltage input ranges, CMOS or RS232 interface, data logging, and special software functions. In addition to horizontal position data, compass azimuth, tilt (pitch and roll), and barometric altitude are available.

U.S. Patent No. 5,583,776.

## Applications

- Military
- Public safety, police and fire
- Forestry
- RF field strength survey
- Delivery personnel
- Medical patients
- Natural resource management
- Utility workers

# Honeywell

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# DRM®-III OEM Circuit Module

## Features

### Circuit Module Characteristics

- Size: 2.0" x 3.1" x .6" (not including GPS antenna)
- Weight: 1.5 ounces
- Mounting: 4 ea., 4-40 screws, any orientation
- Connector: Harwin M80 Series

### Optional 8M Data Logging Memory

- Over 30,000 record storage
- Simple download to personal computer

### Horizontal Position

- Position error: 2% to 5% of distance traveled without GPS fix
- Self-calibrating when GPS is available
- Kalman filter integrates GPS and Dead Reckoning

### Altitude

- Temperature compensated
- External initialized barometric altimeter
- Altitude data based on Standard Atmosphere

### Data Protocol

- NMEA0183 output sentence RMC
- Point Research Binary, bi-directional
- Data update rate up to 4 Hz.

### Software Features

- World Magnetic Model for true azimuth
- Compensation for hard and soft iron errors
- Adaptive pedometer algorithm
- Metabolic functions
- IEEE floating point data format
- Field re-programmable flash memory
- Input for external position fixes
- SmartPedometry™ compensates for backwards/sideways motion

### GPS Receiver

- 12 channel L1 frequency, C/A code, SiRF-based
- Cold Start 60 sec., Hot Start 2-6 sec.
- Power management modes
- Coin-cell memory battery backup
- Active patch antenna

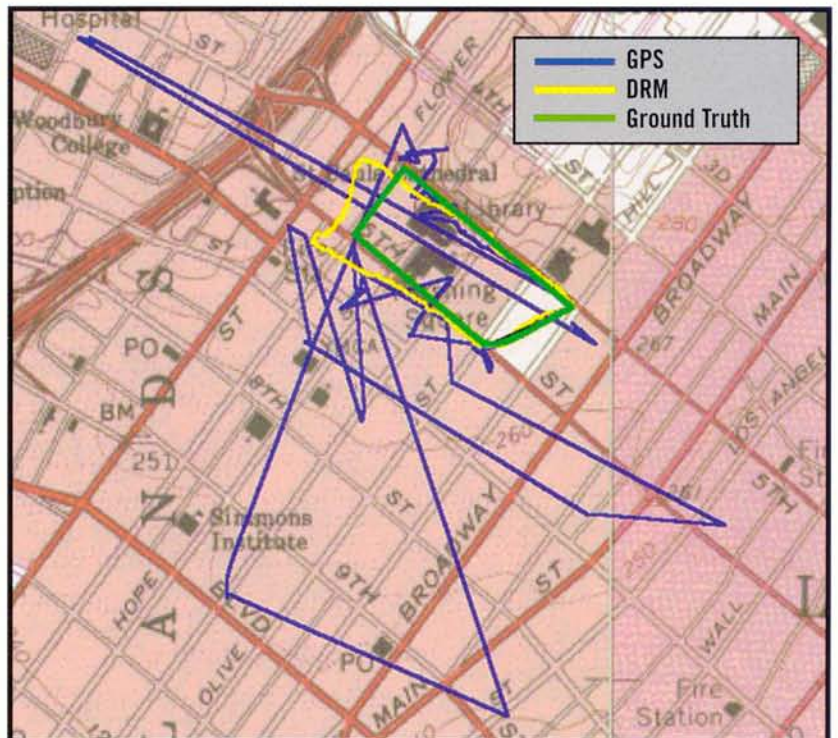
### Availability

- Stock to 8 weeks

Specifications subject to change without notice.  
DRM and SmartPedometry are trademarks  
of Point Research Corp.

## Operating Specifications

Parameter	Value
Dead Reckoning Relative Position	20-50 meters per 1 Km without GPS fix (2%-5% distance traveled)
Barometric Altitude	3 meters
Azimuth accuracy	1 degree RMS, 0.1 deg. resolution
Pitch and Roll (Tilt) accuracy	1 degree RMS, 0.1 deg. resolution
GPS Position Accuracy	5 meters CEP with S/A off
Temperature range	0 to +70 degrees Centigrade
Shock	500 G, half cycle sine, 0.5 ms.
Power required	0.24 watts DRM only 1.24 watts DRM + GPS
Supply voltage	5-9 v. DC
Data update rate	Up to 4 samples / sec., or every footstep.
Data interface	RS-232, 9600 bits/sec.



*Effective where GPS is inaccurate or unavailable*