

Honeywell Sensors

Digital Compass Solution

The Honeywell HMR3400 is a digital compass solution designed for use in navigation and precision pointing applications. Using a common set of commands from the legacy HMR3300 digital compass solution, the HMR3400 is designed to be easily integrated into host systems with a regulated 5 volt supply and a UART serial data interface.

Features: • Tilt-Compensated • Operating Temperature Range: -40°C – 85°C

Description	Digi-Key Part No.	Price Each	Honeywell Part No.
HMR3400 Module	342-1057-ND	360.00	HMR3400

TruePoint™ Compass Module

The HMR3500 TruePoint compass module is a 3-axis digital compass solution with a customizable coordinate system for mounting in any desired orientation. It has provisions for hard and soft-iron correction algorithms to handle magnetic distortion effects. In addition a World Magnetic Model feature is provided to automatically add declination angle corrections for reference to true north (geographical north). **Features:** • Tilt-Compensated • Operating Temperature Range: -40°C – 85°C • Supply Voltage Range: 5DC **Benefits:** • Better than 1° Nominal Heading Accuracy (1 σ), 0.1° Resolution • $\pm 89^\circ$ Pitch and Roll, 360° Continuous Roll Capability

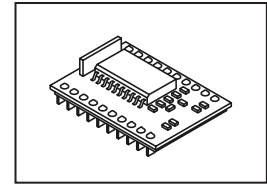
Description	Digi-Key Part No.	Price Each	Honeywell Part No.
HMR3500 Module	342-1058-ND	750.00	HMR3500
Demo Kit	342-1059-ND	900.00	HMR3500 DEMO

3-Axis Magnetic - Hybrid

A complete 3-axis magneto-meter with analog output in a 20-Pin hybrid DIP package.

Features:

- DIP-20 foot-print (1" x .75") allows easy insertion into system-level boards, reducing development costs
- Solid state components improve reliability and ruggedness compared to mechanical fluxgates
- Accurately measures fields from 40 gauss to ± 2 gauss at 1V/gauss
- Low noise instrumentation amplifiers with 1kHz low pass filters, reject unwanted noise
- No flux concentrators used in this design that can lead to hysteresis and non-repeatability
- An externally accessible +2.5V reference improves measurement accuracy and stability
- On-board excitation current source reduces temperature errors and regulates the power supply input
- Magnetic field offsets or closed loop circuits can be applied using the built-in straps
- Output signal accuracy may be enhanced by using the integral set/reset straps
- All components selected and packaged in nonmagnetic material to reduce magnetic distortion and offsets.



Applications:

• Compassing • Navigation systems • Attitude reference • Traffic detection • Proximity detection • Medical devices

Specifications (Power Supply: +15VDC; Set/Reset switching is active):

• Operating Temperature: -40°C – 85°C, ambient @ 25°C • Supply Voltage: 6VDC – 15VDC; Transient protection circuitry should be added across V+ and Gnd if an unregulated power supply is used • Supply Current: 20mA • Output Voltage: 0.5V – 4.5V • Field Range: ± 2 gauss • Typical Linearity Error: 1% FS; ± 2 gauss applied field sweep • Typical Hysteresis Error: 0.05% FS; 3 sweeps across ± 2 gauss • Typical Sensitivity: 1.0mV/gauss; at Vbridge +5V • Typical Resolution: 40 μ gauss • Bandwidth: 1kHz

Units:

• 1 gauss (G) = 1 Oersted (in air), 1G = 79.58A/m, 1G = 10E-4 Tesla, 1G = 10E5 gamma

Description	Digi-Key Part No.	Price Each	Honeywell Part No.
3-Axis Magnet Sensor Hybrid	342-1011-ND	210.00	HMC2003

1, 2 and 3-Axis Magnetoresistive

Configured as a 4-element wheatstone bridge, these highly sensitive sensors convert magnetic fields to differential output voltages, capable of sensing magnetic fields as low as 30 μ gauss.

Features: • Field range up to ± 6 gauss, (earth's field = 0.5 gauss) • Small package designed for 1 and 2-axis to work together to provide 3-axis (x, y, z) sensing • Solid state devices reduce board assembly costs, improve reliability and ruggedness compared to mechanical fluxgates • Patented on-chip set/reset straps to reduce effects of temperature drift, non-linearity errors and loss of signal output due to the presence of high magnetic fields • Patented on-chip offset straps for elimination of the effects of hard iron distortion

Applications: • Compassing • Navigation systems • Attitude reference • Traffic detection • Medical devices • Non-contact switch

SPECIFICATIONS:	Honeywell Part No.			
	HMC1001	HMC1021 HMC1022	HMC1042	HMC1043 HMC1051 HMC1052 HMC1053 HMC1055
Operating Temperature (Condition)	-55°C – 150°C ‡ (—)	-55°C – 150°C (—)	-40°C – 125°C (Ambient)	-40°C – 125°C (Ambient)
Field Range Full scale (FS) - total applied field	± 2 gauss ‡	± 6 gauss	± 6 gauss	± 6 gauss
Sensitivity Typical (Set/Reset Current)	3.2 mV/V/gauss (0.3A)	1.0 mV/V/gauss (0.5A)	1.0 mV/V/gauss (0.5A)	1.0 mV/V/gauss (0.5A)
Resolution Typical (Bandwidth, Vbridge)	27 μ gauss ‡ (10Hz, 5V)	85 μ gauss (10Hz, 5V)	160 μ gauss (1kHz, 5V)	120 μ gauss (50Hz, 5V)
Bandwidth Magnetic signal (lower limit = DC)	5MHz ‡	5MHz	5MHz	5MHz

Units: 1 gauss (G) = 1 Oersted (in air), 1G = 79.58A/m, 1G = 10E-4 Tesla, 1G = 10E5 gamma

‡ Not tested in production, guaranteed by characterization

Description	Digi-Key Part No.	Price Each			Digi-Key Part No.	Tape and Reel		Honeywell Part No.
		1	25	100		Qty.	Pricing	
8-Pin SIP, Single Axis	342-1001-5-ND	19.00	11.00	10.00	—	—	—	HMC1001
8-Pin SIP, Single Axis	342-1061-ND	17.00	6.75	5.00	—	—	—	HMC1021Z-RC
8-Pin SIP, Single Axis	342-1034-5-ND	17.00	6.75	5.00	—	—	—	HMC1051Z
8-Pin SIP, Single Axis	342-1060-ND	17.00	6.00	5.00	—	—	—	HMC1051Z-RC
8-Pin SOIC, Single Axis	342-1003-5-ND	17.00	6.75	5.00	—	—	—	HMC1021S
8-Pin In-Line LCC, Single Axis	342-1043-5-ND	17.00	13.00	12.00	—	—	—	HMC1051ZL
16-Pin SOIC, Double Axis	342-1005-1-ND	17.00	10.00	6.00	342-1005-2-ND	2,500	3250.00/M	HMC1022
16-Pin LCC, Double Axis	342-1042-5-ND	17.00	7.00	6.00	—	—	—	HMC1052L
16-Pin LCC, Double Axis	342-1053-1-ND	17.00	7.00	6.00	342-1053-2-ND	3,000	3250.00/M	HMC1042L-TR
20-Pin SOIC, Double Axis	342-1070-ND	21.00	19.80	18.70	—	—	—	HMC1002-RC
16-Pin LCC, Triple Axis	342-1035-5-ND	55.00	50.00	42.00	—	—	—	HMC1053
16-Pin LPCC, Triple Axis	342-1054-1-ND	34.00	15.00	14.00	342-1054-2-ND	1,000	8999.97	HMC1043-TR
3-Axis Compass Sensor Set with (1 each) HMC1051Z, HMC1052, MEMSIC, MXS3334UL	342-1036-ND	22.50	18.00	—	—	—	—	HMC1055
NEW! Demonstration Boards NEW!								
Demo Board for HMC1041Z and HMC1042L	342-1064-ND	—	250.00/1	—	—	—	—	HMC1042L/HMC1041Z-DEMO
Demo Board for HMC1043	342-1066-ND	—	250.00/1	—	—	—	—	HMC1043-DEMO

◆ RoHS Compliant † Cut Tape

HMC6042

The HMC6042 includes our state of the art 1042 series magneto-resistive sensors plus a precision mixed signal ASIC containing three sensor amplifiers and a compatible set/reset strap driver circuit for 2.4 – 3.6 volt operation. The sensors feature precision in-axis sensitivity and linearity, solid-state construction with very low cross-axis sensitivity designed to measure both direction and magnitude of Earth's magnetic fields. **Features:** • Low Voltage Operations (2.4V – 3.6V) • Built-in Set/Reset Drive Circuit • Wide Magnetic Field Range (+/-6 Oe) **Benefits:** • Single Logic Input for Degaussing, Thermal Drift Compensation • Feedback Pins for Gain and Bandwidth Shaping

Description	Digi-Key Part No.	Cut Tape Price Each			T & R† Pricing 1,000	Honeywell Part No.
		1	25	100		
2-Axis Magnetic Sensor	342-1055-1-ND	25.00	8.00	7.00	5000.00	HMC6042-TR
Demonstration Board for HMC6042/HMC1041Z	342-1065-ND	250.00/1	—	—	—	HMC6042/HMC1041Z-DEMO

◆ RoHS Compliant

† For Tape and Reel part number, change 1-ND to 2-ND.

Digital Compass Module

The HMC63xx digital compass modules combine a 2 or 3-axis tilt sensor with the required support circuitry for heading computation. By combining the sensor and processing elements into a small LCC or LPCC package designers will have the most simple solution to integrate low cost and space efficient compasses for mobile phones, consumer electronics, vehicle compassing and antenna positioning.

HMC6343 Features: • 36 pin LPCC • 3-axis sensor • 2.7V – 3.6V supply range

HMC6352 Features: • 24 pin LCC • 2-axis sensor • 2.7V – 5.2V supply range

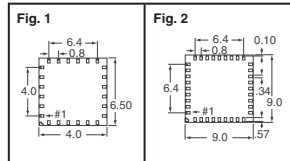


Fig.	Description	Digi-Key Part No.	Price Each	Honeywell Part No.
1	24-Pin LCC, Double Axis	342-1041-5-ND	30.00	HMC6352
2	36-Pin LPCC, Triple Axis	342-1056-ND	175.00	HMC6343
Demonstration Board for HMC6343		342-1067-ND	250.00	HMC6343-DEMO
Evaluation Board for HMC6352		342-1068-ND	100.00	HMC6352-EVAL
Demonstration Board for HMC6352		342-1069-ND	250.00	HMC6352-DEMO

◆ RoHS Compliant

DRM™ 4000

Features and Benefits: • State-of-the-art dead reckoning device for personnel navigation • Typical DR accuracy 2% distance traveled • Low power consumption • Industrial temperature range: -40°C – 85°C

The Dead Reckoning Module (DRM™) 4000 is a miniature, electronic device for personnel on foot that provides the user's position relative to an initialization point. When GPS data is available, the dead reckoning sensors are automatically calibrated continuously and the two data sources are blended into a composite real-time position data output. When GPS data is unavailable, dead reckoning takes over. Motion classification algorithms analyze walking motion, and compensate when the user is running, or in place.

Description	Digi-Key Part No.	Price Each	Honeywell Part No.
DRM 4000 Module	342-1052-ND	1695.00	DRM4000-N00-232
DRM 4000 USB	342-1062-ND	1995.00	DRM4000-N00-USB
DRM 4000 Evaluation Kit	342-1063-ND	3120.00	DRM4000-N00-USB-EVAL

More Product Available Online: www.digkey.com

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