

# 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 (1σ), 0.1° Resolution • ±89° Pitch and Roll, 360° Continuous Roll Capability

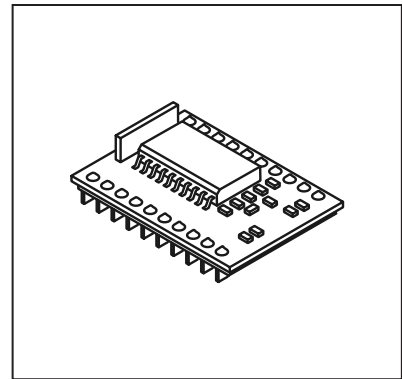
Description	Digi-Key Part No.	Price Each	Honeywell Part No.
HMR3500 Module	342-1058-ND	675.00	HMR3500
Demo Kit	342-1059-ND	775.00	HMR3500 Demo

## 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 µgauss 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/V/gauss; at Vbridge +5V
- Typical Resolution: 40 µgauss
- 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	191.25	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 µgauss.

### 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 HMC1002	HMC1021 HMC1022	HMC1042	HMC1043 HMC1051 HMC1052 HMC1053 HMC1055
<b>Operating Temperature</b> (Condition)	-55°C ~ 150°C ‡ (—)	-55°C ~ 150°C (—)	-40°C ~ 125°C (Ambient)	-40°C ~ 125°C (Ambient)
<b>Field Range</b> Full scale (FS) - total applied field	±2 gauss ‡	±6 gauss	±6 gauss	±6 gauss
<b>Sensitivity Typical</b> (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)
<b>Resolution Typical</b> (Bandwidth, Vbridge)	27 µgauss ‡ (10Hz, 5V)	85 µgauss (10Hz, 5V)	160 µgauss (1kHz, 5V)	120 µgauss (50Hz, 5V)
<b>Bandwidth</b> 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	17.00	15.00	12.00	—	—	—	HMC1001
8-Pin SIP, Single Axis	342-1004-5-ND	17.00	6.00	5.00	—	—	—	HMC1021Z
8-Pin SIP, Single Axis	342-1061-ND◆ <b>NEW!</b>	17.00	6.00	5.00	—	—	—	HMC1021Z-RC
8-Pin SIP, Single Axis	342-1034-5-ND	17.00	6.00	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	6.00	5.00	—	—	—	HMC1021S
8-Pin In-Line LCC, Single Axis	342-1043-5-ND	17.00	11.00	10.00	—	—	—	HMC1051ZL
10-Pin MSOP, Double Axis	342-1029-1-ND◆†	17.00	7.00	6.00	—	—	—	HMC1052
16-Pin SOIC, Double Axis	342-1005-1-ND◆†	17.00	7.00	6.00	342-1005-2-ND◆	2,500	3250.00/M	HMC1022
16-Pin LCC, Double Axis	342-1042-5-ND◆	17.00	6.75	5.50	—	—	—	HMC1052L
16-Pin LCC, Double Axis	342-1053-1-ND◆†	17.00	7.00	6.00	342-1053-2-ND◆	3,000	3500.01/M	HMC1042L-TR
20-Pin SOIC, Double Axis	342-1002-5-ND	19.00	18.00	17.00	—	—	—	HMC1002
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†	25.00	15.00	12.00	342-1054-2-ND	3,000	8999.97/M	HMC1043-TR
3-Axis Compass Sensor Set with (1 each) HMC1051Z, HMC1052, MEMSIC, MXS3334UL	342-1036-ND	22.50	18.00	—	—	—	—	HMC1055

◆ RoHS Compliant † Cut Tape

(Continued)

More Product Available Online: [www.digkey.com](http://www.digkey.com)

Toll-Free: 1-800-344-4539 • Phone 218-681-6674 • Fax: 218-681-3380

(T083) 2441

N