

LINEAR POSITION SENSOR MODULE

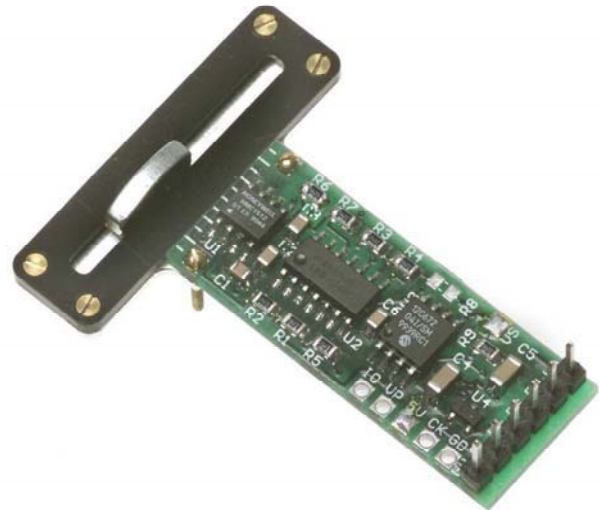
Features

- 0-10 mm Magnetic Travel (Magnet Dependent)
- Continuous PWM and Analog Voltage Outputs
- 0.2mm Accuracy (Magnet Dependent)
- 0.05mm Repeatability
- -40° to +85°C Operating Temperature Range
- 1%/100°C Temperature Effect
- Small PCB Package
- 6 to 20 volt DC Single Supply Required

General Description

The Honeywell HMR4001 is a high-resolution single sensor module capable of measuring linear or angular position. Advantages include high sensitivity so lower cost magnets such as alnico or ceramic can be used, insensitivity to shock and vibration, and ability to withstand large variations in the gap between the sensor and the magnet.

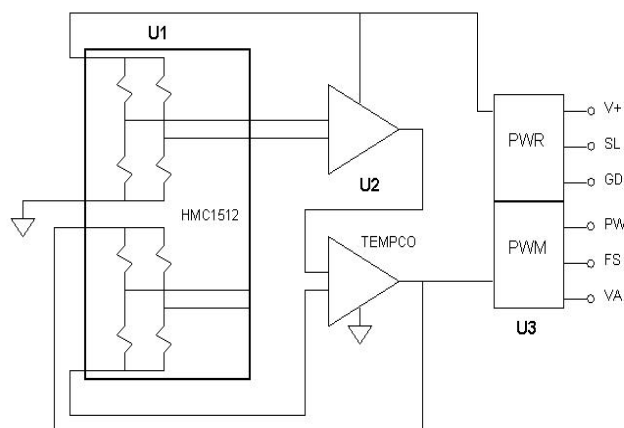
The HMR4001 is manufactured with Honeywell's HMC1512 Magnetic Displacement Sensor IC, which provides better performance than Hall Effect devices and only needs a magnetic field source greater than 80 gauss. Dual frequency PWM and analog outputs plus a sleep mode function are included on board



APPLICATIONS

- **Linear Displacement**
- **Shaft Position**
- **Angular Displacement**
- **Proximity Detection**

Block Diagram



SPECIFICATIONS

Characteristics	Conditions	Min	HMR4001 Typ	Max	Units
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Linear Position

Range	> 80 gauss at sensor		10		mm
Accuracy	> 80 gauss at sensor		0.2		mm
Repeatability	> 80 gauss at sensor		0.05		mm

Angular Position

Range	> 80 gauss at sensor		90		deg
Accuracy	> 80 gauss at sensor		0.1		deg
Repeatability	> 80 gauss at sensor		0.07		deg

Magnetic Field

Strength	Repeatability <0.03% FS	80	-	-	gauss
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Electrical

Voltage	Unregulated	6	-	20	volts DC
Current	Active Mode - SLEEP pin = 5V (or open)		7		mA
Supply	Sleep Mode - SLEEP pin = 0V		< 2		mA

PWM Output

Frequency	FS = 5V (or open) FS = 0V		350 250		Hz Hz
Frequency Accuracy	Ambient Temperature (+23°C)	+/-8	-	-	%
PWM Range	"1" Level Duty Cycle	1	-	99	%
PWM Amplitude	"1" Level at any Position	4.5	-	5.5	Volts pk-pk

Analog Output

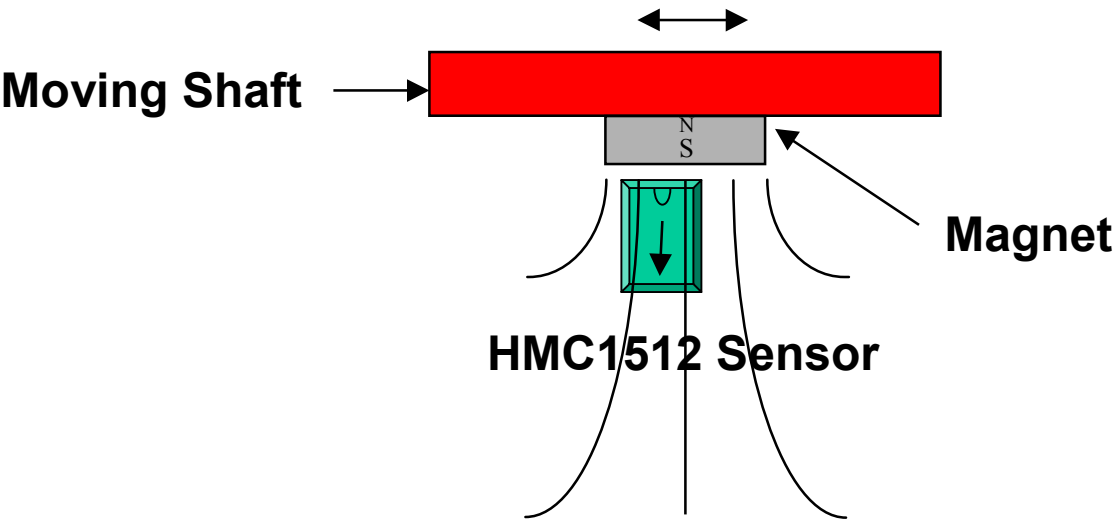
Range	Ambient Temperature (+23°C)	-	4.0	-	volts
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Physical

Dimensions	circuit board only		15x48.5x12		mm
Weight	circuit board only		5		grams

Environment

Temperature	Operating	-40	-	+85	°C
	Storage	-55	-	+125	°C



Demonstration PCB Module

The HMR4001 Demo Module includes an attached magnet and slide assembly for evaluating the performance of the module.

Ordering Information

Ordering Number	Product
HMR4001-D00 -DEMO	PCB Module with Attached Magnet Assembly
HMR4001-D00	PCB Module Only

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