

Re: Hall effect sensor

Source: <http://sci.tech--archive.net/Archive/sci.electronics.basics/2007-12/msg00708.html>

- *From:* NoSpam@xxxxxxxxxxxxx (Bob Masta)
 - *Date:* Fri, 28 Dec 2007 13:57:55 GMT
-

On Thu, 27 Dec 2007 16:26:46 -0500, "thomas" <thomas@xxxxxxxxx> wrote:

I'd like to use a Hall Effect sensor to detect 6 magnets on the outside of a 2.5" rotating cylinder. It rotates at 20 RPM resulting in 120 pulses per minute (I'll calculate speed from this). This will be a damp environment so a ferrous 'target' is not an option.

I have found small inexpensive ring magnets (with the S pole facing out) that I can easily mount on the cylinder. I have NOT found small inexpensive ring magnets that are magnetized diametrically (N and S are on the same face).

There are many many types of Hall Effect sensors. Most need alternating N and S fields: either with 2 opposite poled magnets, or with a single N/S ring magnet.

Is there a type that can detect the coming and going of just a S field (the field will never be totally absent)?

I found a Gear Tooth Sensor type that senses a ferrous target. Can I just use the S facing ring magnet instead of the ferrous target?

As others have mentioned, a gear tooth sensor should be just fine. The standard "reluctance" sensor is just a magnet plus a coil of wire around a ferrous core. The coil senses changes in the magnetic field caused by the gear teeth concentrating the flux momentarily as they pass by.

But if you really want to mount rotating magnets, then all you need for a sensor is a coil of wire around a core. The whole thing can be potted in plastic if you are worried about moisture.

If you have a junkyard nearby, you might cannibalize an old automotive distributor from the days before electronic timing. (But which still used electronic ignition.)

The GM design used an 8-tooth "gear" that rotated inside a

Re: Hall effect sensor

ring with 8 teeth pointing inward so that they came very close to the "gear" teeth. That gave much higher output than the conventional single gear tooth sensor (used by Ford and others).

Best regards,

Bob Masta

DAQARTA v3.50

Data AcQuisition And Real-Time Analysis

www.daqarta.com

Scope, Spectrum, Spectrogram, FREE Signal Generator

Science with your sound card!

.