

## Re: Hall effect sensor

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- *From:* gearhead <nospam@xxxxxxxxxxxx>
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On Dec 27, 1:26 pm, "thomas" <tho...@xxxxxxxx> 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.

Here's a link that helps explain the types of hall sensors:

<http://www.allegromicro.com/en/Products/Design/an/an27705.pdf>

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

That's called a unipolar sensor; sensitive only to one magnetic polarity, typically south.

Example: Honeywell's SR13C-A1. I used that sensor to convert a motorcycle distributor from points to solid state. I installed quarter inch diameter neo magnets in a fixed aluminum disc above the base plate, one hall sensor on the base plate directly below each magnet, and had a steel shutter disc rotating between the magnets and the sensors, to break the magnetic field. Some ancillary circuitry to drive the ignition coil. It worked the first time I turned over the engine.

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?

Re: Hall effect sensor

Well, I've never used that kind of sensor, so I can't say it would work. But I would encourage you not to give up on the hall sensors. I had an easy time with them. If you use a unipolar sensor and get it installed the right distance from the magnets you shouldn't have any problem. This is as much a mechanical job as an electronic one.