Installing the Hall RPM Sensor with Magnets

Installing the optional Hall RPM sensor and magnets is the most challenging part of installation, but is relatively easy once a good mounting location is determined. Refer to our website's Flight support page at http://www.eagletreesystems.com for pictures of example installations.

To install our magnets, first find a suitable location on your motor or drivetrain to attach either one or two small magnets and RPM sensor. Typically, the prop washer or prop hub are ideal locations for planes, and the car's axle shaft is good for car installation. This will of course vary with the construction of the model. Make sure the magnets are mounted on some structure that doesn't "flop around," as the magnets could hit the sensor in this case. The RPM sensor must be mounted so that it does not move around, and is within 1-2 mm of the two magnets as they spin. On typical plane installations, there's usually a place where the back of the sensor can be glued to a flat surface under or over the hub which has the magnets mounted. The RPM sensor kit includes four magnets. That provides you with up to 3 spares.

Installing Magnets

Once you have determined where to install the magnets, decide whether you will drill a hole so that the magnets will mount flush with the surface, or if you will just glue the magnets to the surface. Though somewhat more difficult and permanent, mounting the magnet flush with the surface is the best long term approach, since the mounting will be much more rugged, and the risk of imbalance due to not mounting the magnets exactly 180 degrees apart is reduced. In fact, if the magnet is mounted flush in another metal material, it is quite possible that no shaft imbalance will occur if you only mount one of the magnets total. If you decide to use only one magnet, make sure you change the gear ratio to "2" on the Calibrate Motor RPM page under the Tools menu in the app. To flush mount the magnets, drill a hole just slightly larger than the diameter of the magnet size you choose, and of the same depth as that magnet. If you decide to surface mount the magnets, thoroughly clean this area and lightly scuff it to improve adhesion. Glue the magnets with the side marked with a red line facing inward (hidden), using epoxy, or other strong, suitable glue. It's important that the red line on the magnets faces away from the sensor once the sensor is installed. The magnets should be glued 180 degrees apart to keep the shaft in balance.

WARNING: make sure that the magnets are glued sufficiently so that they will not detach and create a hazard, and always wear safety glasses when your motor is running! It is also a good idea to put a piece of heatshrink tubing or electrical tape around the magnets, to further secure them.

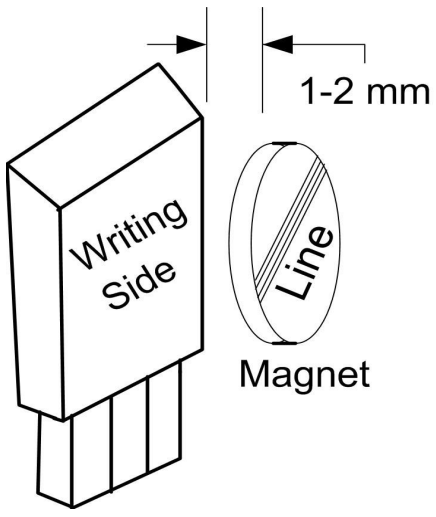
Using Existing Magnets

Note: if your motor already has magnets mounted for some other purpose, there's a good chance you can use them.

Take one of the magnets included with the RPM sensor kit, and put that magnet up against the previously mounted magnet. If the red line of the MicroPower magnet faces down so that the sensor can be mounted facing the side of the magnet with no red line, mount the sensor with the printed side toward the magnet. If the side of the magnet with the red line is visible when on top of the previous magnet, the polarity is reversed. This should work correctly if you install our sensor backwards (printed side of sensor away from magnets).

Installing the RPM Sensor

Once the magnets are glued and completely dry, temporarily position the RPM sensor so that **the side of the sensor with printing is facing the side of the magnets WITHOUT the red line.** The sensor now needs to be glued so that it is held rigidly into position. Before gluing, put a small spacer (1-2 mm thick) between the sensor and one of the magnets to ensure proper spacing. If desired, a small piece of brass tubing can be glued or heatshrunk to the back of the sensor to ease mounting and increase stability. After the sensor is glued and completely dry, remove the small spacer and rotate the drive train or propeller to ensure complete freedom of movement.



Make sure that the sensor won't vibrate and come in contact with the magnets during operation. If this happens, the sensor will be destroyed, and the Logger could be damaged.

Once these steps are complete, consult your Logger manual to plug the Futaba style connector on the sensor into the Logger. Note that a standard Futaba style servo extension cable can be used to lengthen the RPM sensor wire if needed.