

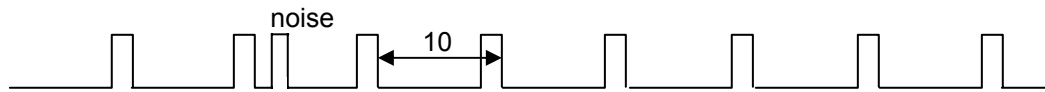
DataMite USB RPM Measurement Preferences (for Advanced Users)

The USB DataMite III and DataMite 4 loggers allow for adjustments for measuring RPM signals. These can be accessed via Preferences.

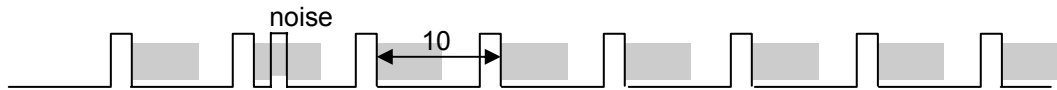
One is to use either the leading edge or trailing edge of the signals. Typically trailing edge works best, but you can try changing it when troubleshooting bad engine RPM signals.

You can also adjust the Frequency Holdoff Time, mSec. This is the amount of time the logger will allow before it will look for a new pulse. For example, if a single cylinder 2 stroke motor is running at 6000 RPM, the ignition system is putting out an ignition pulse 6000 times per minute, or 100 times a second. The time between these ignition pulses is 1/100 second, or 10 milliseconds. See pic below, 10 msec between trailing edges.

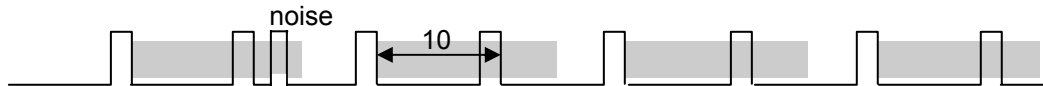
If a "stray" pulse comes in, the logger thinks the RPM just have jumped way up for a short period of time, which shows up as a noise spike in your RPM data.



If you tell the program to not use any pulse which is within, say, 6 milliseconds of another pulse, then the logger will ignore the noise pulse and you will get good RPM. The gray block indicates the hold off time and any trailing edge of a pulse which occurs in the gray block is ignored by the logger. This will eliminate the noise spike.



If you would specify a holdoff time too big, say 16 milliseconds, you will start losing real pulses, and the RPM recorded will be too low, in the case below, half of the real RPM.



To estimate the Holdoff time, use this equation:

$$\text{Holdoff time, mSec} = 0.6 \times 60000 / \text{Max RPM} / \text{pulses per revolution}$$

0.6 is a safety factor to not make this setting too large. You could use 0.7 and 0.8 also.

Max RPM is the highest RPM you expect to measure

Pulses per revolution are the number of ignition pulses produce per engine revolution.

Some examples of pulses per revolution include:

- 1 cylinder 2 stroke (or 4 stroke wasted spark) fires 1 per revolution would be 1
- V-8 4 stroke on coil wire (sees all 8 pulses) would be 4
- V-8 4 stroke on separate plug wire (sees only 1 cylinder's pulse) would be 0.5

Click on Preferences

