DEBOUNCE CONFIGURATION INFORMATION

Mach provides settings for Input Signal Debouncing / Noise rejection on the General Logic Configuration page. (Config tab > General Config....)

There are two different settings specific to different types of inputs and are defined as follows:

Debounce Interval - is used for all switches / inputs except for an Index
Index Debounce - Specific for a spindle rpm (ie; is used for rigid tapping, motor speed control, and turning, threading and css on a lathe)

Debounce interval / index debounce is the number of pulses that a switch must be stable for to be considered valid.

Example:
For a KERNEL Speed OF 35,000 Hz a setting of 100 would give an approx 3 millisecond debounce (100/35000=.0029 secs).

Simplisticaly, all debounce does is allow more time to see a steady input signal, it is in milli seconds and will slightly delay any inputs that are triggered. So if you input a value "0" no additional time is added before the input is used by the software, but if you input a value of "1" then time is added. Ideally, an index signal input to Mach should be kept as low as possible, preferably zero .

Some type of device, "hardware" must be used to supply an input. Note that an input signal is either on or off / high or low state and may be repeating the condition as in the case of index input. The "ideal" switch / input signal is one that changes state perfectly, but, anything that changes state may have noise, ringing, debounce, etc that creates problems with the signals quality as given to Mach. So Mach provides a software fix for the mechanical or electronic problem of the hardware.

In forum responses to input devices (switch) used for homing or index (rpm readout, etc) different terms are used to describe the reason the input is causing a problem. The problem is the affect on a desired function done by the software, ie; no rpm reading, index not working, not homing properly. The first step in solving a problem is to identify the cause. I am limiting this information strictly to the input device and not other Mach configurations associated with doing something. Frankly the only way to truely know switch signal condition is to view the signal using an oscilloscope to see the signal.

Debouncing routines sample the switch's state at a fairly high rate. When a change in the state is detected, the routine will count anywhere from 1 to whatever the debounce number is set to. Mach samples to make sure the transition was not a glitch and that the switch has settled to its new state. The higher the number the longer it waits to verify that the switch has indeed been triggered and is not just noise from servo,spindle, etc.

Mach's debounce is really a software fix for a hardware problem. The ideal solution is to remove the noise from the system and use a debounce of 0. Many people either can't or don't want to expend the effort required to accomplish that. The pragmatic approach is to lower the debug number until the problem appears, then raise it back up a little. That leaves the issue of "How do I tell if my required debounce setting is too high"?