

# quadrature encoder rotation rate averaging

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Hi,

I am using this quadrature encoder:

["http://www.usdigital.com/products/e4p/](http://www.usdigital.com/products/e4p/)

with 300 cycles per revolution / 1200 pulses per revolution. I have it hooked up to an AVR microcontroller (atmega168) using two external interrupt pins for the A and B channel (there is no index channel). This is working and I have a variable that keeps track of the encoder pulses and uses a 4state machine to check the rotation direction, so the variable goes + for forward rotation and - for reverse rotation.

I am now trying to get an averaged rotation rate for the last 1ms, 10ms, 100ms, 1s and 10s. I have an interrupt that runs every 1ms for this but the code only updates the rotation rate variables once per period, ie. once per second for the 1s variable, instead of giving a continuously updated value from the last second.

Any ideas on how to fix this? I was thinking about using a digital lowpass filter: (<http://www-users.cs.york.ac.uk/~fisher/mkfilter/trad.html>) for each rotation rate variable but am not sure if that is the best way to do it.

cheers,

Jamie

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