

## Re: Texas TMS1232 Delta Sigma converters

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*Source:* <http://sci.tech-archive.net/Archive/sci.electronics.design/2005-11/msg00068.html>

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- *From:* John Devereux <[jdREMOVE@xxxxxxxxxxxxxxxxxxxx](mailto:jdREMOVE@xxxxxxxxxxxxxxxxxxxx)>
  - *Date:* 01 Nov 2005 17:19:55 +0000
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John Larkin <[jjlarkin@xx](mailto:jjlarkin@xx)> writes:

> On Tue, 01 Nov 2005 17:11:13 +1000, Adrian Jansen <[adrian@xxxxxxxx](mailto:adrian@xxxxxxxx)>  
> wrote:  
>  
>>Sorry, I meant ADS1232, too used to typing T for Texas parts.  
>>  
>>They did some neat tricks in the internals of this, using a 10 Hz  
>>sampling frequency automatically rejects a lot of 50/60 Hz signal.  
>>  
>>One of the objects in using this widget is that we can cut the external  
>>part count down from around 60 precision components on an existing  
>>design to less than 10 non precision ones, so I prefer not to add analog  
>>filtering unless we *\*really\** have to.  
>>  
>>My bench power supply is quiet, 5.00 volts with less than 0.1mv residual  
>>noise, and using fully isolated double transformer with separate  
>>inter-winding shields. Still get some hum pickup on the bench of  
>>course, but its about as low as I can get till I do a proper board layout.  
>>  
>>The app isnt for weighing, and I can jigger the test transducer so its  
>>inputs are essentially true zero for test purposes, its just noise  
>>picked up between the transducer and the ADC I'm trying to eliminate.  
>>As well as the ref noise and stuff of course.  
>>  
>>Thanks for the tips.  
>  
>  
> Past about 18 bits, the reference problem is serious. Most references  
> have a heap of 1/f noise, which will be a problem around 10 Hz...  
> bandgaps are bad. We're using an Analog Devices Xfet ref, ADR421,  
> which is pretty good. The Intersil things are interesting too, basicly  
> a voltage trapped on a capacitor forever.  
>  
> One could build a 0.xx Hz active lowpass filter (a non-trivial  
> problem) or maybe average a bunch of references, four maybe, but the  
> math is discouraging here, improvement as to the square root of the  
> number of refs.

Re: Texas TMS1232 Delta Sigma converters

One can just make the measurement ratiometric, i.e. use the "reference" to supply the transducer excitation as well as the ADC ref input.

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John Devereux

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• **References:**

- ◆ **Re: Texas TMS1232 Delta Sigma converters**  
◇ From: John Larkin
- ◆ **Re: Texas TMS1232 Delta Sigma converters**  
◇ From: John Larkin
  
- Prev by Date: **Re: Which music is good for demo a media player?**
- Next by Date: **Lead to lead free ROHS help?**
- Previous by thread: **Re: Texas TMS1232 Delta Sigma converters**
- Next by thread: **Re: Texas TMS1232 Delta Sigma converters**
- Index(es):
  - ◆ **Date**
  - ◆ **Thread**