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ADS124S06: Self and system calibration



[Kwan Lee](#)

[Prodigy_30 points](#)

Community Member

Part Number: [ADS124S06](#)

Does the calibration function(either self or system) for this A/D has to be done for each individual channel?

[over 2 years ago](#)



[Bob Benjamin](#) [over 2 years ago](#)

[TI_Guru**](#) 113595 points

Hi Kwan,

As you have already mentioned, there are 2 forms of calibration within the ADC. The self-offset calibration applies an internal short within the ADC itself and removes any offset with respect to only the ADC. The self-offset calibration applies to any selected input channel if the same PGA settings and data rate are used. When the calibration is run, the code value returned is stored in offset registers so that it can be subtracted from future conversions.

The system calibration works in a similar way and is meant to subtract system offset from sensor or circuitry prior to the ADC (such as an op amp or instrumentation amp) as well as the ADC and requires the system to provide the '0' input for the calibration. In other words this is an external offset calibration to remove external to the ADC offsets. This form of calibration may require different calibration for each set of input channels to the ADC.

There is another way to remove offset of the ADC and that is by using the global chop feature. The global chop swaps the input channel assignments to cancel the offset effects of the ADC.

Best regards,

Bob B



[Kwan Lee](#) [over 2 years ago](#) [in reply to Bob Benjamin](#)

[Prodigy_30 points](#)

Hi Bob,

Thanks for your reply.

So does the self offset calibration and global chop feature gives the same result?

Thanks.



[Bob Benjamin](#) [over 2 years ago](#) [in reply to Kwan Lee](#)

[TI_Guru**](#) 113595 points



Hi Kwan,

Given the same configuration (PGA, data rate, etc.) the conversion result should be the same. Global chop improves the noise as the measurement requires two measurements and the result is an average. Global chop

also greatly reduces offset drift of the measurement.

Note that global chop will not update the offset calibration registers and also takes two measurements to complete. Depending on the digital filter used, this could greatly extend the length of the conversion period. If the measurements require faster conversion rates, then self-offset calibration has an advantage. So there are pros and cons using each method.

Best regards,

Bob B

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