

Atmos. Meas. Tech. Discuss., author comment AC2
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Reply on RC2

Daniel Furuta et al.

Author comment on "Characterization of inexpensive metal oxide sensor performance for trace methane detection" by Daniel Furuta et al., Atmos. Meas. Tech. Discuss.,
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Thanks again for your detailed comments and suggestions. We agree with both points and will incorporate them into the final revision.

- I would suggest the authors list the response time of LI-7810 since it is an optical gas meter. As per the instrument supplier, LI-7810 has a response time of 2 sec for CH₄ between 0-2 ppm (without considering the transfer time in tubing's). This is in fact very fast for an optical gas meter. Providing such information won't hurt (but rather help) the manuscript.

We agree. The very fast response time for the instrument is another useful detail with regards to concerns about synchronization. We will add this information to the revision.

- The authors talked about noise-free bits. Such information is useful but not usually required as the bits are related to many factors such as sampling rates. Please simply provide the ADC bit information. Based on the authors' response, I guess it could be 24-bits, which is adequate for the sensor comparison experiments.

We agree about concisely specifying bit information. The hardware ADC operates at 16 bits; the noise floor is lowered further by averaging, giving the effective bit rate we mentioned previously. The manufacturer discusses the noise and resolution at length (<http://labjack.com/support/datasheets/t-series/appendix-a-3-2-2-t7-noise-and-resolution>); we will simply state the 16-bit hardware depth with averaging for 37 μ V nominal effective resolution in the revision, and cite the datasheet for the details.