

(43-240329-B) Implementing a Next Generation *in-situ* Measurement System across NOAA GML Tall Towers and Baseline Observatories

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A new measurement platform called “NextGen” was designed, assembled, and tested in 2023 for NOAA’s GML Atmospheric Baseline Observatories and Tall-tower *in-situ* greenhouse gas measurements. The common platform for both programs will 1) unify and standardize measurements for the Tall-Towers and Atmospheric Baseline Observatories, 2) implement improved instruments and design, and 3) preserve the best features of the previous generation systems. The previous tower *in-situ* system has been deployed since 2007, and the current system at the Atmospheric Baseline Observatories has been in use since the early 2000’s, with gradual improvements over time. The “NextGen” schematic diagram and system specifications are outlined in the poster. Important features of the “NextGen” system include modularization for easy change out of failed components, an RS-485 communications bus with separate analog to digital units in each module to reduce signal wiring, updated analyzers, and standardization of data processing and storage between the Atmospheric Baseline Observatories and Tall-Towers. Viewing of diagnostics and real time data are available via a web interface. The first NextGen system was deployed to the Colorado Atmospheric Observatory tower in February 2024.

This work was supported by the NOAA Cooperative Agreement with CIRES, NA17OAR4320101



Figure 1. The first NextGen system setup inside the Colorado Atmospheric Observatory trailer.

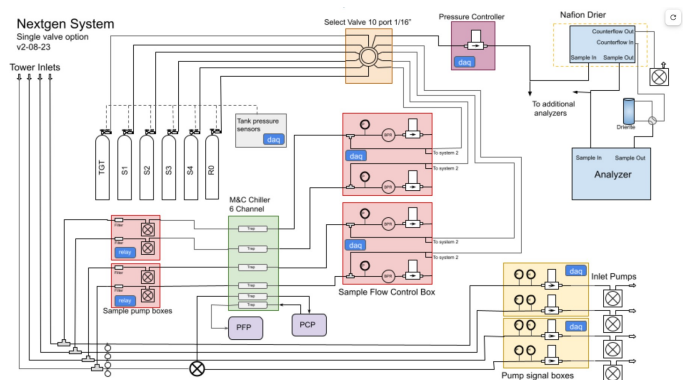


Figure 2. NextGen system schematic.