

Automotive OEM Improves Quality of Aerodynamic Tests With Ultra Performance

RESULTS

- Improved quality of aerodynamic tests
- Reduced wind test facility start-up time
- Decreased start-up costs

APPLICATION

Air flow into wind tunnel facility

CUSTOMER

Automotive Industry OEM in Midwest USA

CHALLENGE

Automotive scientists and aerodynamicists for this OEM were having difficulty controlling the air speed at their wind tunnel test facility. The wind tunnel is used to test the aerodynamic performance of vehicles at constant wind speeds of 45 mph (72 kph). Variables, such as vehicle shape, are iteratively changed to see the aerodynamic effects.

This OEM was previously using a differential pressure transmitter cell from a non-Emerson vendor which gave unstable wind speed measurement in the wind tunnel. The DP cell took 24 hours to stabilize its reading which resulted in repeated verifications and calibrations. The inaccuracy of the DP measurement didn't assure the scientists that wind speed was constant while changing other aerodynamic variables. Also, the DP transmitter was six times more costly and only had serial output which made integration into the PLC more difficult.

Several negative business impacts resulted from the DP transmitter. Poor quality aerodynamic test data resulted from the instability and inaccuracy of the DP transmitter. The DP transmitter took one day to start up and stabilize for testing. Lastly, the serial output made programming more complex and increased engineering costs prior to startup.



The 10-year stability and accuracy of the 3051S Ultra resulted in reliable and stable wind test tunnel performance.



Rosemount 3051S

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SOLUTION

The challenges faced by the scientists and aerodynamicists were solved with the Rosemount 3051S. The 10-year stability and accuracy of the 3051S Ultra resulted in reliable and stable performance of the air speed measurement. Also, the variety of communication protocols allowed for easier integration into the PLC.

By improving the performance of the air speed flow measurement, the scientists experienced improved quality of aerodynamic tests, reduced start up time, and decreased engineering costs.

RESOURCES

Rosemount 3051S Series of Instrumentation

<http://www.rosemount.com/3051s>

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