

Autonomous Underwater Vehicle Torque Transducer

Industry: Maritime, Industrial Automation

Summary

Customer Challenge

Autonomous underwater vehicles (AUV) are used for deep-sea exploration. The AUV's thrusters, which control speed, direction, and maneuverability, must operate efficiently various pressure and resistance conditions found in the ocean environment. An accurate system is needed to analyze the subtle variations in thrust performance across different load conditions.

Interface Solution

Interface recommends the T2 Ultra Precision Shaft Style Rotary Torque Transducer paired with the SI-USB4 4-channel USB Interface Module. The T2 measures torque during thruster operation, allowing engineers to observe fluctuations in torque as the propellers encounter varying water resistance. The SI-USB4 4-channel USB Interface Module enabled real-time data acquisition, visualization, and recording directly on a laptop or desktop computer.

Results

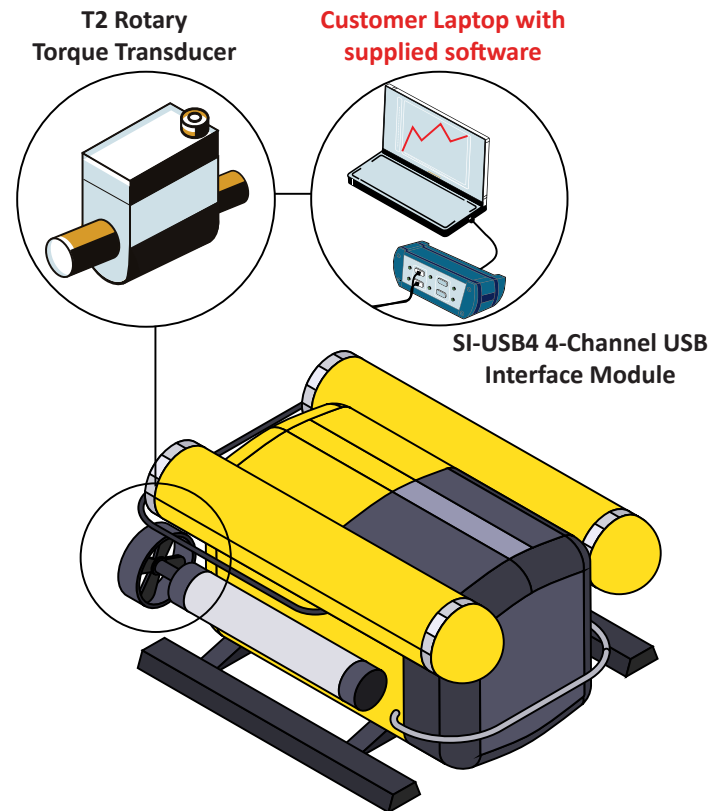
Using Interface's torque transducer and data acquisition system, the engineering team successfully conducted precise torque performance evaluations of the AUV thrusters under simulated underwater load conditions.

Materials

- T2 Ultra Precision Shaft Style Rotary Torque Transducers
- SI-USB4 4-channel USB Interface Module
- Customer PC

How It Works

1. The T2 Ultra Precision Shaft Style Rotary Torque Transducer is installed inline between the AUV's thruster motor and the propeller assembly. This placement allows the T2 to directly measure the torque output generated by the motor as it drives the propeller under test conditions.
2. The motor is powered on to simulate propulsion conditions similar to those experienced underwater. As the motor drives the propeller, the T2 continuously measures the torque being applied through the shaft.
3. When connected to a computer, the SI-USB4 4-channel USB Interface Module can monitor and display the results of the torque.



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