

Underwater Humanoid Robot

Multi-Axis

Industry: Maritime, Industrial Automation

Summary

Customer Challenge

An engineering team needs to ensure their aquatic transformer robot could perform complex underwater tasks safely and reliably. The underwater humanoid robot can switch between AUV, or autonomous, and remote modes where someone can remote in and take control. This requires validating the strength of its limbs and joints, the accuracy of its manipulator forces, and the durability of its transforming mechanisms under high pressure and hydrodynamic loads.

Interface Solution

Interface's 6A55RI 6-Axis Robot Flange Force-Torque Sensors were integrated into the arms of the underwater humanoid robot to measure joint stress and the loads experienced during the transformation between autonomous and remote modes. The 6A55RI's captured real-time force and torque data during simulated underwater tasks such as valve turning, lifting, and tool handling. This load cell can be connected to the customer's system via EtherCAT cable. Results can be viewed on the customer's PC when connected to the customer's protocol system.

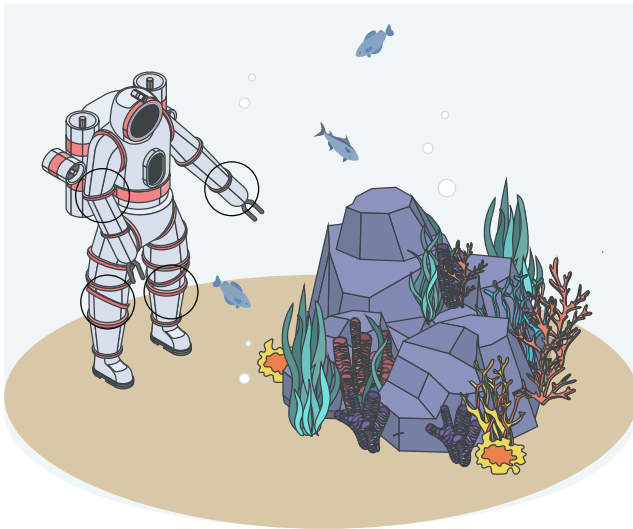
Results

Using Interface's force measurement solutions, the engineering team verified the robot's structural reliability. As a result, the customer gained confidence that the underwater humanoid robot could perform delicate repair work while remaining strong and efficient during long-distance underwater travel.

Materials

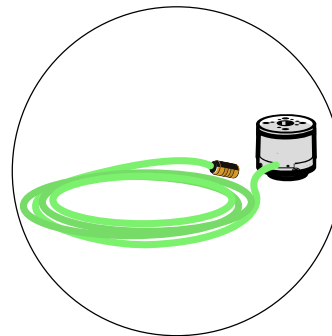
- 6A55RI 6-Axis Robot Flange Force-Torque Sensors
- Customer protocol system
- Underwater Humanoid Robot under test

Underwater Humanoid Robot



How It Works

1. Interface's 6A55RI 6-Axis Robot Flange Force-Torque Sensors were integrated into the arms of the underwater humanoid robot, and protected by the robot's environment.
2. Multiple tests are done to measure the limbs of the robot, and how much stress or loads it can take—especially when switching from autonomous or remote modes.
3. The customer can record and view the results when the 6A55RI is connected via EtherCAT to the customer's protocol system.



6A55RI 6-Axis Robot Flange Force-Torque Sensors