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James Cameron's Historic Return to Mariana Trench Relies on Latest Advances in Engineering and Technology

California-based Opto 22 provides primary control system and key expertise for James Cameron's record-setting dive to the Mariana Trench as part of the *DEEPSEA CHALLENGE* expedition

Temecula, CA – April 3, 2012 – On March 26, 2012, filmmaker and National Geographic Explorer-in-Residence James Cameron made a successful solo descent of almost 7 miles (11 km) to the "Challenger Deep," deepest point in the world's oceans. The dive marked the return of humans to the bottom of the Mariana Trench after an absence of over fifty years. Cameron's accomplishment drew worldwide attention to the *DEEPSEA CHALLENGE* expedition, a joint scientific expedition partnership by Cameron, National Geographic, and Rolex to conduct deep-ocean research and exploration at the great depths of the deepest point on Earth.

Cameron reached the sea floor in the *DEEPSEA CHALLENGER*, a technologically advanced deep-sea submersible built by Sydney, Australia-based Acheron Project Pty. Ltd. A computer-based control system from U.S. manufacturer Opto 22 sits at the heart of the submersible, controlling and monitoring more than 180 onboard systems such as sensors, batteries, thrusters, life support, and lighting.

The differences from the previous dive to the Challenger Deep are notable. In 1960, Swiss explorer Jacques Piccard and U.S. Navy Lt. Don Walsh descended in the bathyscaph *Trieste*, which took almost five hours to reach the sea floor, over three hours to return, and stayed on the bottom for just 20 minutes. Sediment stirred up by the bathyscaph obscured the view through its small porthole and photographs of the sea floor outside weren't possible.

Half a century after that first dive, *DEEPSEA CHALLENGER* takes advantage of advances in materials science, battery technology, and electrical and computer systems to create a mobile “science platform” that can descend to the sea floor in two hours, spend hours exploring, and then return to the surface in just over an hour. The submersible is equipped with multiple cameras, including 3D video cameras, a tower of LED lights, and robotic claws and other apparatus to collect samples of rocks and sea creatures.

Cameron’s record-setting dive was backed by a team of engineers, scientists, educators, and journalists, including an on-site technical liaison from Opto 22, Application Engineer Benjamin Orchard, who worked with the submersible builder to integrate the Opto 22 control system into the sub. In addition, a team of programmers and electrical engineers at Opto 22 headquarters in Temecula, CA, helped with custom programming, system design, and troubleshooting. David Wotherspoon, Project Manager with Acheron Project Pty. Ltd., was pleased with the results. “Opto 22,” said Wotherspoon, “provided an advanced submersible, *DEEPSEA CHALLENGER*, with a reliable control system that performed above my expectations.”

About Opto 22

Opto 22 develops and manufactures hardware and software for a wide variety of applications involving industrial automation and control, energy management, remote monitoring, and data acquisition. Opto 22 products are used in over 10,000 installations worldwide. Designed and made in the U.S.A., Opto 22 products have an established reputation worldwide for ease-of-use, innovation, quality, and reliability. The company was founded in 1974 and is privately held in Temecula, California, U.S.A. Opto 22 products are available through a global network of distributors and system integrators. For more information, contact Opto 22 headquarters at +1-951-695-3000 or visit www.opto22.com.

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