

Compact-Propulsion Option for Profiling Systems

C-PrOPS

Brochure

Biospherical Instruments, Inc.

5340 Riley Street; San Diego, CA 92110-2621 USA

Phone: (619) 686-1888

E-mail: sales@biospherical.com

Web: www.biospherical.com



Compact-Propulsion Option for ProfilinG Systems **C-PrOPS**

Introduction

Compact-Propulsion Option for Profiling Systems (**C-PrOPS**) is a next-generation upgrade to Biospherical Instruments' Compact Optical Profiling System (**C-OPS**) that adds 3-dimensional position control to the free-fall profiler using state-of-the-art thrusters. The C-PrOPS system replaces the standard instrument backplane with an analogous backplane that supports a central housing containing the electronic circuitry for the thruster control. C-PrOPS is controlled by an innovative ProPower box that implements multiple technologies, including:

- Thruster control telemetry
- Power conditioning for the thrusters;
- Personnel protection circuitry to avoid electrical shocks;
- TRAC thruster control pad with communications display;
- C-TRAC wireless remote thruster control interface.

The use of thrusters helps avoid platform perturbations (e.g., ship or dock shadow), supports profiling in situations where it is not possible to position the profiler by another means (e.g., allowing the wind to move a boat away), or adds the capability of performing profiles from a beach or nearshore structures (e.g. dock, jetty, breakwater, etc.).

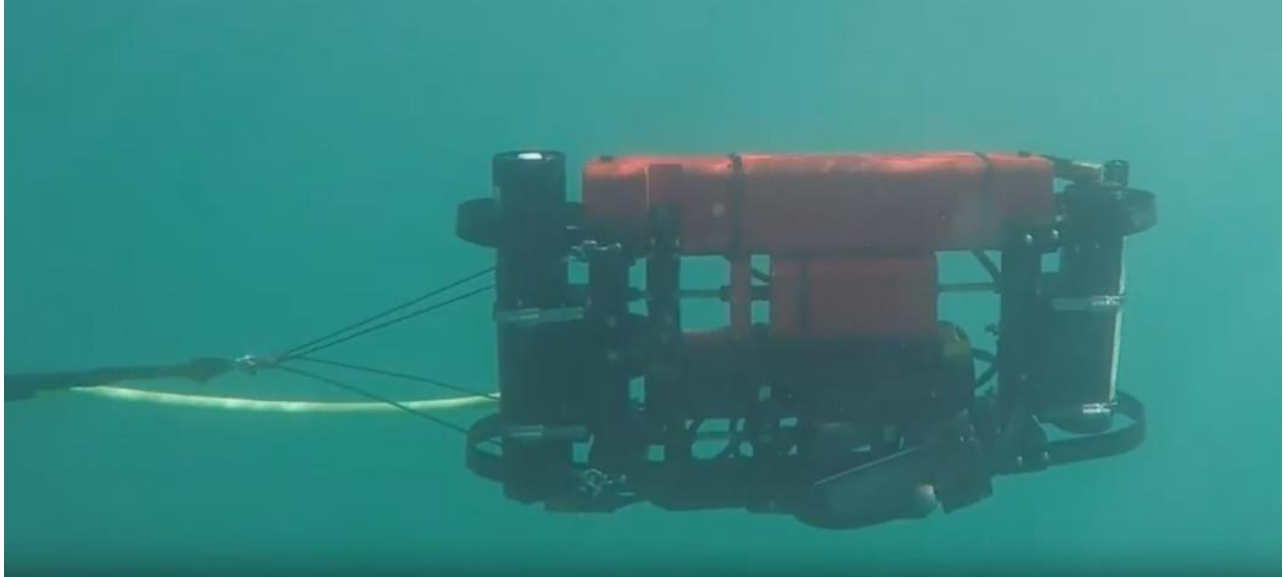
Easy to Deploy



Easy to Recover



Unprecedented Control: Avoid vessel/platform shadow; pitch/roll stability; slow descents.

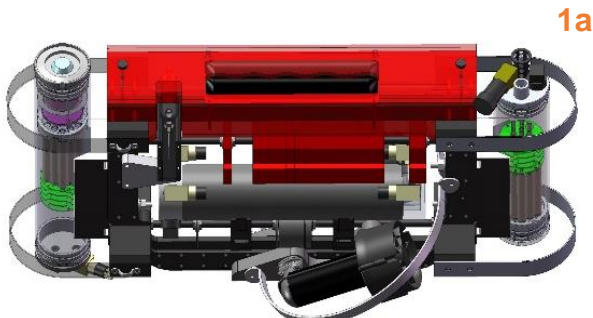


C-PrOPS Components

The following briefly presents the main hardware components of the C-PrOPS accessory for C-OPS systems.

C-PrOPS Instrument Mounting and Control Elements

C-OPS with C-PrOPS includes the following C-OPS elements that have been redesigned or modified for use with thrusters (Fig. 1).



C-PrOPS backplane showing instruments and thruster as well as location of air bladders.



Yellow C-OPS box with battery charger and weatherproof USB cable.

Fig. 1. C-OPS elements modified for use with C-PrOPS include (a) the new backplane, and (b) the yellow deck box with charger.

1. C-PrOPS backplane (Fig. 1a): The thrusters, a central housing with electronics, and the in-water optical instruments are mounted to this backplane.
2. Yellow C-OPS deck box (Fig. 1b): A modified C-OPS Microradiometer deck box that provides the interface to the C-PrOPS system; this box can either be connected to its battery charger during use or charged before going into the field. The battery charger and USB cable are shown to its right.

C-PrOPS Power and Thruster Control Elements

C-OPS with C-PrOPS includes the following new elements that are unique to the C-PrOPS upgrade (Fig. 2).

3. Silver ProPower Box (Fig. 2a): The above water power and communications components for C-PrOPS are enclosed here. It must be connected to AC Power for operation.
4. C-TRAC (Fig. 2b): A remote control unit that must be charged before going into the field by connecting it to a computer's USB port using a micro USB to USB cord, which is provided.



Fig. 2. C-PrOPS power and thruster controls; (a) ProPower box with TRAC, and (b) C-TRAC wireless remote-control unit.

Cables required for deployment

- Green sea cable (Fig. 3a): used to connect C-PrOPS and the silver ProPower box.
- Red deployment cable (Fig. 3a): used to connect the Surface Reference Assembly to the yellow Microradiometer box. When a BioShade is present, the red deployment cable connects directly to the BioShade.
- ProPower AC power cable (Fig. 3b): connects the silver ProPower box to AC power.
- Laboratory cable (Fig. 3b): used to connect the silver ProPower box to the yellow C-OPS box
- Four adapter cables (two are shown in Fig. 3b): two are used to connect the sea cable and the deployment cables to their respective boxes; two are used to connect the BioGPS to the BioShade and the Ed0 to the BioShade.
- Weatherproof USB cable (Fig. 3b): used to connect the yellow Microradiometer box to the Data Acquisition Computer.



Fig. 3. C-OPS with C-PrOPS cable components. (a) Green sea cable (left) and red deployment cable (right); (b) (top row, left to right) Laboratory cable, weatherproof USB cable, ProPower AC Power cable; (bottom row, left to right) micro USB to USB cable, two adapter cables.