

## Research submersible ICTINEU 3

The **ICTINEU 3** is a new generation manned submersible, with a powerful state-of-the-art battery package that can drive up to 20 miles underwater. This exceptional range is achieved through exacting hydrodynamics and vehicle efficiency making **ICTINEU 3** a safe and excellent tool for underwater exploration, scientific research and underwater intervention.

The **ICTINEU 3** submersible is a 3-person vehicle rated to 1200m and it is among the top 10 deepest (active) submersibles in the world. It offers an unobstructed view of the seabed thanks to a big acrylic window 1.5m in diameter.

The ICTINEU 3 design, construction and quality control have been approved under Germanischer Lloyd certification rules, and it will be registered under **DNV-Germanischer Lloyd Class Notation 100 A5** Submersible and MCS for machinery installation.



### Main Facts

- Reduced weight for easy operation from most research vessels, 5.450 kg.
- Reduced size for easy transportation, fits in a 20 feet open-top container.
- Passengers can go in/out from water surface.
- High power and high energy capacity: any mission can be performed with no limitation of energy regardless the equipment being used; increase in safety.
- Facility and capacity to upload any instrument or sensor from the client.
- Capability for heavy duty and long distance runs.
- Huge field of view for photography and video recording, unobstructed.
- Passengers are always sitting comfortably, as ergonomics plays an important role in the vehicle.
- Long dives, comfort, high operability and safety in one vehicle.

### Propulsion and Manoeuvring

**Complete 6 controllable degrees of freedom** provided by the configuration of the 8 thrusters, 2kW each, and internal buoyancy tanks.

**Piloting** is smooth and precise thanks to proportional control on thrusters.

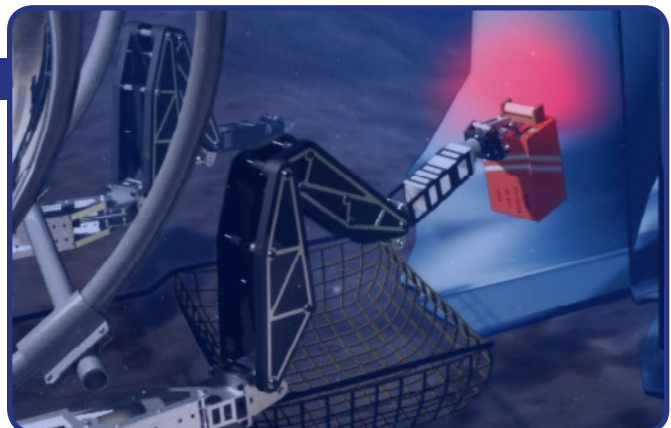
**Power system** It is based on last generation lithium-ion-polymer batteries, which give the vehicle a high power capacity: 3kW continuous, 42 kWh (10 hours full autonomy at normal load capacity).



### Sensors Platform

The Ictineu 3 has been designed as a sensors platform, providing an easy implementation of any sensor provided by the client through dedicated junction box.

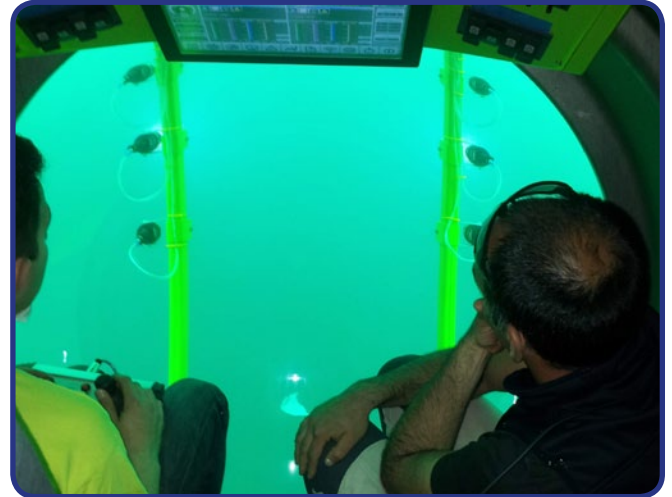
CTD and multi-parametric probe are always mounted on board and logging data, free-available to the scientific community after each dive.



## Lighting and camera system

The two front bars in the bow provide a rail system to attach lights, cameras and sensors. They can be removed for special filming projects, and replaced by lighting poles according to client needs.

The high quality of the acrylic window allows for filming and photography with professional cameras from inside the pressure hull, avoiding external housings.



### General Specifications

Max. Operating depth	1.200 m
Weight in air	5.450 Kg
Length	4,80 m
Beam	1,95 m
Height	3,00 m
Hatch diameter	0,54 m
Main (front) acrylic window diam.	1,20 m
Hatch acrylic window diameter	0,54 m
Crew	1
Passengers	2
Payload	300 kg
Classification authority	DNV-GL

### Life Support

Emergency life support	+ 96 hours for 3 people
------------------------	-------------------------

### Buoyancy and trimming

Diving tanks	670 L
Buoyancy tanks	240 L

### Safety devices

Emergency drop weigh	254 Kg
Diving tanks	600 L
Emergency buoy	1.800 m rope
Total buoyancy generation of	500 Kg at max. Depth

### Propulsion

Stern thrusters	4 x 2,5kW, 43Kg
Manoeuvring prop. thrusters	4 x 2,5kW, 43Kg

### Batteries

Main group 150V, 42kWh	Lithium-ion-polymer
Service and Emergency group	24V, 1,3kWh
Working autonomy	10h

### Dynamic Characteristics

Maximum surface speed	2,5 Knots
Maximum submerged speed	4,2 Knots
Cruising submerged speed	1,5 Knots
Autonomy range at cruising speed:	20 nautical miles

### Equipment

Underwater telephone
VHF for Surface communication
Flux-gate compass
GPS
Sonar
Altimeter
Analogue depth gauge and digital pressure sensor
Doppler Velocity Log
6 LED Lights of 6.000 Lumen each
CTD multi-parametric probe with pH sensor, ORP (Redox) sensor, Dissolved Oxygen sensor, Fluorometer.