Technical Specifications

NEW!

FULL OCEAN: 11 500 meters operational depth

13 800 meters fully functional tested

Pressure compensated 148 V DC, 10,36 kWh Lithium- Polymer battery module

FULLY SUBMERSIBLE: designed for direct submergence in water, no need for a pressure vessel.

EASY TO INTEGRATE, PLUG & PLAY MODULE: built-in battery management system, fuses and power contactors.

SAFE: tested according to DNVGL Type Approval program. Each unit undergoes a pressure Routine Test at operational depth.

RELIABLE: initially certified by GL and used in regular operation in the manned submersible ICTINEU 3 for more than 5 years, this 3rd generation is an improved and even more robust evolution.

LIGHTWEIGHT: only 110kg in air and 10,36 kWh in a pressure compensated box with all the system built-in.

COMPACT: only 59 liter displacement

FIRE PROOF MATERIALS: battery box and internal parts made of structural, fire-resistant and self-extinguishing materials.

FLEXIBILITY OF USE: the battery has independent charge and discharge connectors for a more simple integration. It can be charged and discharged simultaneously if needed.

Patented

Example: in AUVs, maintenance and mision re-configuration tasks can be run while the battery is on charge withouth need to shut down the vehicle system or feed it from an external source.

Description

The ICTINEU battery system is very simple to install, even into an existing vehicle or platform, as it is designed as a plug and play system that does not need any special engineering for integration. Based on the batteries initially developed for the ICTINEU 3 manned submersible, the 10.36kWh Li-Po battery has evolved in the past 5 years to better fulfill different underwater applications for manned as well as unmanned vehicles including AUVs and other solutions. The result is a 3rd generation rated for 11,500m.

This is the Li-Po battery that offers the best weight and volume to power ratios in the market: 10.36 kWh at 148 VDC in a 62 litre displacement box all built in to warranty robustness, reliability and safety.

Each module incorporates its own Battery Management System (BMS) and safety elements and can be controlled and monitored externally via two different buses, the CAN bus and/or the RS232 bus. All the desired data (cells temperatures, SOC, SoH, cells voltages, current, etc.) is available to user 100% of the time. But for simple applications the battery module can be controlled just with two switches/signals, one for charge and one for discharge -and the battery will be controlled and protected by the built-in systems.

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Pressure Tolerant Lithium Polimer Battery

Advanced features and reliability

The 11.500m battery has a Heritage based on a set of 4 Ictineu Li-Po batteries installed and operating on the ICTINEU 3 submersible since 2012, where they have been providing service to 98 dives at sea up to 1.000m depth. The submersible and the Li-Po batteries were classed by DNVGL. Overall, the company has performed more than 580 pressure cycles to the different cell types that are used in their systems, more than 1.250 pressure cycles to the control electronics and safety elements.

Ictineu performance and quality assurance is supported by many years of experience performing tests on the batteries, components and at system level in support of DNVGL classification. Not only static survival tests but also functional and fatigue tests are applied to each new product to ensure that each component type performed correctly and within specifications under the operational conditions (pressure and temperature).

The battery is currently undergoing a DNVGL Type Approval program, in addition to the ICTINEU Submarins extensive validation program. This ensures the highest standards of quality and safety in design, manufacturing and performance.

All the components and materials used in each battery are of the best quality and are individually tested before integration.

The battery system comes standard with a Graphics User Interface to monitor the batteries. ICTINEU Submarins provides a specific charger and can optionally provide a discharger.

General Electrical Specifications	
Voltage (nominal)	148 VDC
Voltage (nominal)	148 VDC
Capacity	70Ah
Energy	10.36 kWh
Max discharge rated current	80 A
Discharge temperature	-10 to 55 ºC
Charge temperature	0 to 45ºC
Max charge current	30 A
Operational Depth	11 500 m / 37 730 ft

Weight and volume	
Weight in air	110 kg / 242 lb
Weight in w ater	49 kg /108lb
Displacement	59 liter / 15.5 US gal

Batteries	
Length	60 cm / 23.62 inch
Width	27.5 cm / 10.83 inch
Height	44 cm / 17.32 inch

Protections and systems	
BMS	Built-in
Charge Pow er contactors	Built-in
Protection fuses	Built-in
Discharge power contactor	Built-in
Communications	CAN 2.9A and RS232

ICTINEUSubmarins can provide special configurations adapted to client needs.
Do not hesitate to contact **info@ictineu.net** for more information.

Ictineu SUBMARINS

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