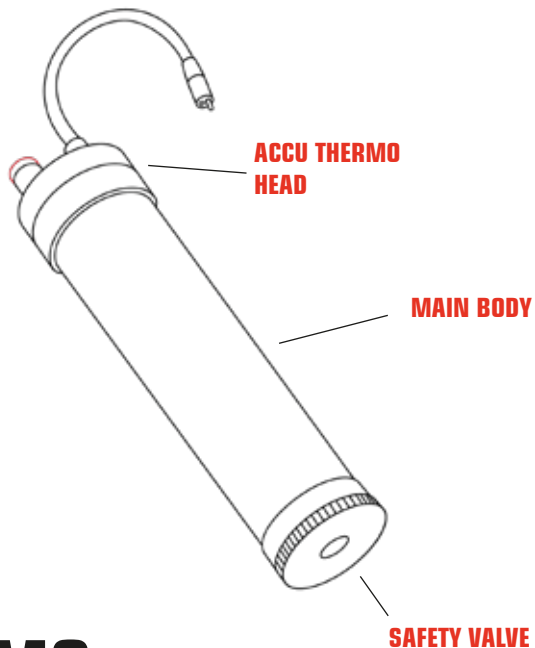


AMMONITE[®]
S Y S T E M

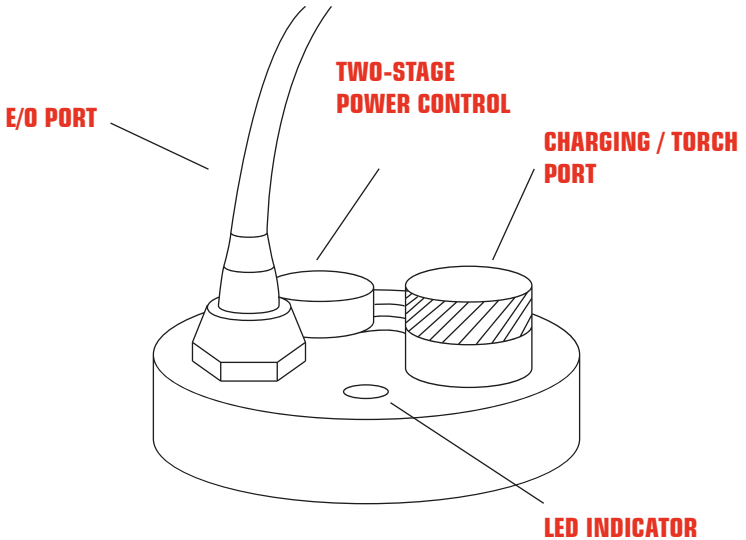
ACCU THERMO

M A N U A L



ACCU THERMO

HEATING BATTERIES



ACCU THERMO HEAD

THANK YOU FOR CHOOSING AMMONITE SYSTEM

We are hopeful that your experience with Ammonite System products will be smooth and flawless. To ensure that please read this manual and follow the rules within. For any questions please check our website www.ammonitesystem.com, contact us by e-mail or our fanpage on Facebook.

The symbol placed on the product or its package indicates that this product cannot be treated as household waste. It should be handed over to the applicable collection point for the used up electrical and electronic equipment by providing proper storage you may prevent dangerous consequences to the environment and human health. Recycling helps to preserve natural resources. For more information about recycling of this product, please contact your local authorities or authorities responsible for environment protection, your household waste disposal service or the shop where the product was purchased.

At the end of the use, the battery should be placed in a special container or brought to a collection point for the recycling of electrical and electronic equipment.

In order to do this please read current environmental protection regulations.

NOTE

Despite the regulations in force concerning air shipping of hazardous goods including Li-Ion batteries, the shipping company may refuse to ship a Li-Ion battery onboard a plane. Ammonite System will not be held responsible for such occurrences.



INTENDED USE

ACCU THERMO batteries are intended to be used to supply power to a diver's heated dive wear and umbilical dive lights operating at a maximum of 12 V, with the receivers (heated undersuit, vest, gloves, and lights) of the maximum total power of not more than 200 W (for ACCU THERMO 14, ACCU THERMO 24 and ACCU THERMO 24 Special).

ACCU THERMO batteries feature two connection terminals at the top part of the casing, one of which has a built-in cable with the so-called E/O connector (wet connector).

It is used to connect the heating device, it is equipped with an „intelligent E/O“ system and features a two-level power regulation (70%/100%) switch to control heating levels.



The E/O connector is intended to be a power supply only for the heated dive wear.

The second terminal is used to charge the battery; it may be also used to connect and power any Ammonite System umbilical dive light.

WHAT IS „INTELLIGENT E/O“

„Intelligent E/O“ is an electronic circuit protecting the contacts of a wet connector (E/O cord), from damage caused by electrolysis. The process responsible for this kind of damage takes place during the passage of current in water between the contacts of a wet connector when it remains unconnected. Until the ACCU THERMO is not connected to a receiver, e.g. a heated vest, there is no voltage on the wet connector (E/O cord). Voltage is automatically cut off also upon disconnecting the receiver by unplugging the E/O cord. Thus, no current passes between the contacts of the wet connector, making them safe from damage.

GETTING READY FOR OPERATION

Due to the considerable power of heated clothing, it is recommended to use a fully charged battery to maximise its operation time.

LED INDICATOR

The LED indicator is located at the top part of the ACCU THERMO casing.

The LED indicates the battery performance status and provides information on the current battery level.

STEP ONE

Power on, the LED lights for 4 seconds in a mode corresponding to its charge level:

- green, continuous: 75% – 100% of charge capacity
- green, intermittent: 50% – 75% of charge capacity
- red, intermittent: 25% – 50% of charge capacity
- red, continuous: less than 25% of charge capacity

STEP TWO

Next, the LED switches to the operation "ready mode":

- repeated two red flashes and one green – battery ready for operation – no receiver on the E/O output.
Once a receiver is connected and found – the E/O output becomes active – the receiver starts being powered;
- continuous green - when a receiver is properly connected.

USING AN UMBILICAL LIGHT WITH ACCU THERMO

It is possible to use ACCU THERMO to simultaneously power supply to heated clothing and an umbilical light.

However, such a gear setup is not recommended for safety reasons.



Ammonite System recommends diving with a primary torch, independently battery-powered, along with two battery-powered backup torches.

To connect the umbilical light to ACCU THERMO undo charging port plug on the ACCU THERMO terminal labelled „charging/torch“.

Next, connect the umbilical light cable to the „charging/torch“ port by correct and firm tightening of the umbilical light cable plug. When the umbilical light is not in use, unscrew the umbilical light plug and then appropriately tightened up the charging port plug.

RECOMMENDATIONS FOR USE

In the case of a longer period of non-use, the battery capacity must be checked by connecting the charger to the charging port. If need be, the battery should be charged up.



The indications on the charger display are only approximate. They serve to determine the estimated battery level.

The circuit controlling the battery performance is equipped with a microprocessor which consumes a minimal amount of power. Therefore, it is necessary to check the battery level in case of a longer period of non-use.

It is recommended to take the battery pack out of the casing and store separately in case of long periods of non-use.



To remove the battery pack, unscrew the top part of ACCU THERMO battery with bare hands. After unscrewing the top part of ACCU THERMO, remove the battery pack.

Before reinstalling the battery pack and screwing on ACCU THERMO, check the condition of the o-ring and lubricate it with silicone grease.

PRECAUTIONS – LI-ION BATTERY PACKS

The battery should not be left unattended while being charged. The battery pack must be fully charged before its first use. Deep discharge of the pack i.e. one below 8.0 V (15% on the battery charger display) should be avoided.

The batteries discharge spontaneously even when they are not used. This may result in deep discharge and, consequently, loss of capacity or deterioration of the battery pack.

Before use in water, condition of the electric cables, particularly the E/O cable, and the charging port plug should be checked.

If any damage is detected, the battery pack should not be used. The battery should be checked for leak tightness – the charging port plug must be appropriately tightened up.

The company Ammonite System will not be held responsible for any damage resulting from the misuse of ACCU THERMO.

CHARGING THE LI-ION BATTERY

To charge the battery, you must connect the charger to a 100–240 V ~ power source.

Proper performance of the charger is indicated on the blue backlit display.

Undo charging port plug on the ACCU THERMO terminal labelled „charging/torch“.

The output plug of the charger must be connected to the battery's „charging/torch“ terminal.

The charge start is indicated by the display changing its colour from blue to red and displaying information on the battery pack charge status.

When the battery has been charged, the display will read „FULL 100%“.



When the battery is charged and charger unplugged the charging port plug must be appropriately tightened up.

USE OF THE LI-ION BATTERY:

The battery must be charged only with the AMMO LITHIUM CHARGER supplied by Ammonite System.

The battery must not be discharged below the voltage level of 8.0 V (15% on the battery charger display).

PERFORMING THE FOLLOWING IS PROHIBITED:

- Open/cut the protective wrap of the battery pack.
- Interfere with the battery construction.
- Short the battery contact pins.
- Use ACCU THERMO with other batteries than genuine Ammonite System battery packs.
- Throw the battery or pierce the cells' casing
- Put the battery into fire.
- Immerse the battery pack into the water.

STORAGE CONDITIONS OF LI-ION BATTERIES

The battery should be stored in a dry, ventilated room in ambient temperatures from +10 °C to +40 °C.

Temperatures higher than +60 °C may cause damage to the internal parts of the battery.

Charging the battery must always take place in a positive temperature: from 10 °C to +40 °C.

If the battery was stored in negative temperature, it is necessary to let it adjust by leaving it in a temperature of at least +10 °C for 4-5 hours.

While diving in winter, you must not store the battery in a negative temperature (e.g. in a car boot or outdoors).

Charging a frozen battery may result in damage to its internal parts. Discharge of the battery may take place in temperatures ranging from +10 °C to +40 °C.

The battery may be stored after prior charge up to 70%-100% (storing a discharged battery leads to its deterioration).

The battery must be stored away from sources of fire and damp, as well as food.

When stored, the battery must be charged at least once every six months or more often if the voltage on its pins amounts to less than 8.5 V (20% on the charger display).

You must check the voltage/capacity on the battery pins once a month using the charger included in the kit or another appropriate measuring instrument.

OPERATING TIME:

ACCU THERMO	TYPE 14	TYPE 24	TYPE 24 special
GLOVES 30 W	4h 10'	8h 5'	8h 5'
VEST 55 W	2h 15'	4h 25'	4h 25'
UNDERSUIT 110 W	1h 10'	2h 10'	2h 10'
GLOVES + VEST	1h 30'	2h 50'	2h 50'
GLOVES + UNDERSUIT	55'	1h 45'	1h 45'

SPECIFICATION:

ACCU THERMO	TYPE 14	TYPE 24	TYPE 24 special
capacity nominal	14Ah	23,45 Ah	23,45 Ah
charger input voltage	100-240 V		
over pressure valve	YES	YES	YES
total energy	125 Wh	242 Wh	242 Wh
max. length	200 mm	262 mm	262 mm
weight	1110 g	1610 g	1800 g
max. operation depth	150 m	100 m	200 m
charge/discharge cycles	500-700	500-700	500-700
charging time	~4.5 h	~8 h	~8 h
rechargeable battery	Li-Ion	Li-Ion	Li-Ion
voltage	10,95 V	10,95 V	10,95 V
max. diameter	66mm	66mm	66mm
weight in water	415 g	715 g	1100 g



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