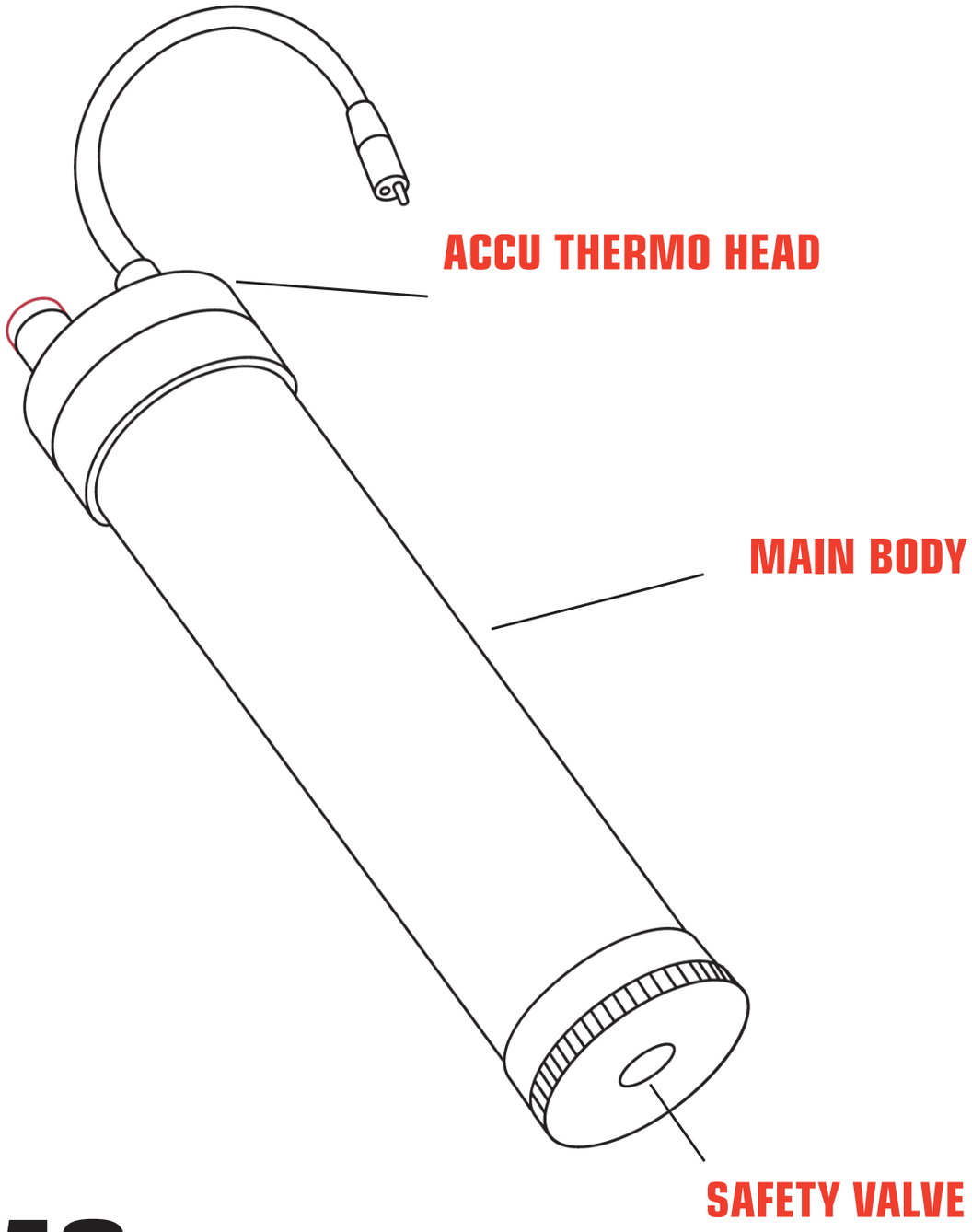
AMMONITE®
SYSTEM

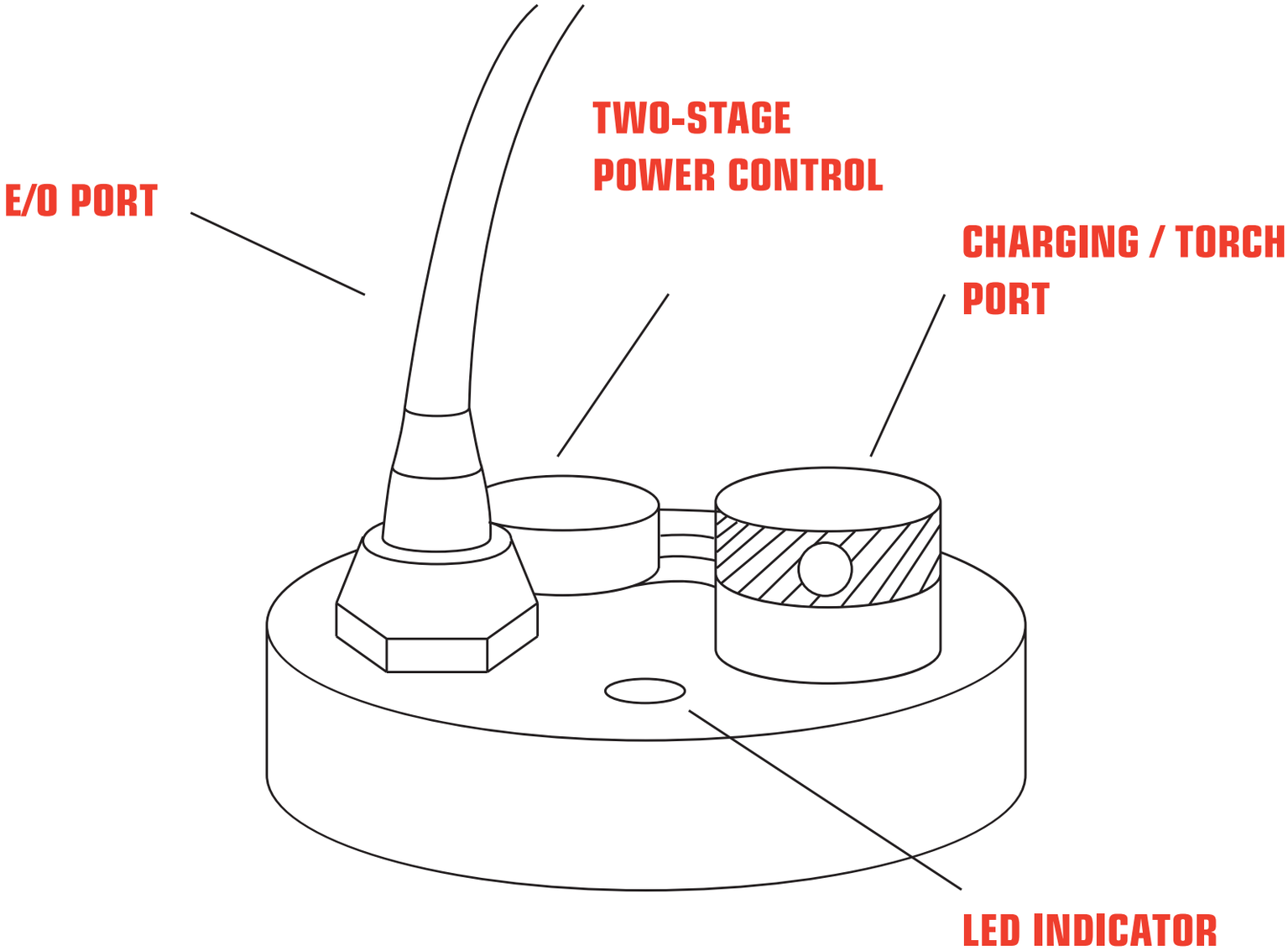
ACCU THERMO

MANUAL



ACCU THERMO

HEATING BATTERIES



ACCU THERMO HEAD

THANK YOU FOR CHOOSING THE ACCU THERMO HEATING BATTERY

We design our products to be as intuitive as possible. If you have any questions, please visit our website: **www.ammonitesystem.com**, where you will also find more information about us and our products. You're also more than welcome to contact us directly.

READ THIS MANUAL CAREFULLY
YOUR SAFETY IS CRUCIAL.

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 battery to simultaneously supply power to heated clothing and umbilical light. However, Ammonite System recommends diving with an umbilical light, independently powered, along with two independently 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.

REPAIR AND MAINTENANCE

ACCU THERMO shouldn't be repaired by the user.
All repairs should be performed only by an authorized Ammonite System service centre.
For repair and maintenance of the ACCU THERMO,only the components and spare parts supplied by the producer must be used.
Components and spare parts from other sources, although identical in appearance, may have slightly different properties, which may negatively impact on the performance of the product.
Using unauthorized components and parts may weaken the performance or damage the ACCU THERMO.
In the event of flooding or malfunction, read the warranty terms at the end of this manual and follow the instructions contained therein.

In case of any questions, or if any of the information contained in this manual is not clear, contact the manufacturer to get an explanation.

Electrical and electronic components as well as standard or rechargeable batteries used for their power supply can be hazardous for the environment. The „waste bin" symbol on the product or its packaging indicates that the product may not be treated as household waste.



This product should be disposed of at an appropriate collection point for waste electrical and electronic equipment.

By ensuring adequate storage, you will help prevent harmful effects on the environment and human health.
Recycling helps to preserve natural resources.
For more detailed recycling information, contact your local office, an environment agency, or a waste disposal company in your area.

After use, the batteries should be disposed of in a special container or sent for further processing to at a designated place.
Please refer to local environmental regulations.

GENERAL AMMONITE SYSTEM WARRANTY CONDITIONS

The warranty covers every Ammonite System product.
Ammonite System offers a one-year basic manufacturer's warranty for the first owner against all defects in material and workmanship.

Ammonite System retains the right to:

- Repair the damaged product under the conditions specified in the warranty.

- Replace the product with a new one when the damage or defect cannot be repaired.

- Offer a similar product of similar value or reimburse the costs when it is not possible to replace it with the same model.

The Ammonite System warranty does not cover defects caused by actions beyond the control of Ammonite System, except for defects caused by assembly errors and inherent vices of the product or components.

The Ammonite System warranty does not cover, among others:

- Spills, leaks, and punctures.
- Damage that results from improper and/or unauthorized repairs or modifications.
- Defects that result from mechanical damage.
- Equipment that lacks proper identification markings and/or with broken warranty seals.
- Damage resulting from improper use, servicing and storage of the product.
- Damage or malfunction caused by the lack of periodic service, in particular when it's caused by worn O-rings and seals.
- Errors resulting from improper assembly and mounting or use of the product in a manner non-compliant with Ammonite System's written instructions and guidelines.
- Elements and parts are subject to natural wear and tear. Spills, leaks, punctures and breaks in cords and E / O cables are not covered by the warranty, unless they're caused directly by defects in material or assembly errors.

Damage such as scratches, cuts and chips are not covered by the warranty.

THE EXTENDED AMMOPOWER WARRANTY

In addition to the standard warranty, Ammonite System offers the original purchaser an extended warranty – AMMOPOWER.
The extended warranty applies to products and accessories manufactured by Ammonite System and sold to the original purchaser under the Ammonite System brand.
The warranty covers defects in material and workmanship for the entire duration of the warranty, calculated in years from the date of original purchase, depending on the type of product.

To maintain the validity of both the basic and the extended Ammonite System warranty, the original proof of purchase is necessary.
The Ammonite System warranty is global as long as the proof of purchase is provided by an authorized Ammonite System dealer.
Any authorized Ammonite System dealer can service warranty repairs under the condition that the proof of purchase is presented.

Products and the duration of their warranty are listed in the table, on the next page.

Product	The basic warranty	AMMOPOWER - the extended warranty	Total duration of the warranty in years
A360 / S360 T-VALVE	1	2	3
compact torches	1	2	3
umbilical lights	1	2	3
ACCU TYPE *	1	2	3
cables	1	No	1
chargers	1	No	1
ACCU THERMO*	1	2	3
battery packs	1	No	1
Goodman handles	1	2	3

*excluding battery packs

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	66 mm	66 mm	66 mm
weight in water	415 g	715 g	1100 g

OPERATING TIME:

ACCU THERMO	TYPE 14	TYPE 24	TYPE 24 special
gloves 30 W	4 h 10’	8 h 5’	8 h 5’
vest 55 W	2 h 15’	4 h 25’	4 h 25’
undersuit 110 W	1 h 10’	2 h 10’	2 h 10’
gloves + vest	1 h 30’	2 h 50’	2 h 50’
gloves + undersuit	55’	1h 45’	1 h 45’

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