

# XX90 PRODUCT OPTIONS

FAMILY OF PRODUCTS OVERVIEW  
FROM ULTRALIFE



**ULTRALiFE**®

Ultralife Corporation serves its markets with products and services ranging from power solutions to communications and electronics systems. Through its engineering and collaborative approach to problem solving, Ultralife serves government, defense and commercial customers across the globe.

Headquartered in Newark, New York, the Company's business segments include: Battery & Energy Products and Communications Systems. Ultralife has operations in North America, Europe and Asia.

**ULTRALIFE®**



# XX90 FAMILY OF PRODUCTS MILITARY BORN

## THE NEXT-GENERATION IS HERE TODAY...

The ULTRALIFE Lithium 9V battery was launched in 1991 as the worlds longest lasting lithium 9V battery.

Since then Ultralife has grown into a power solutions company. Ultralife provides many rechargeable and non-rechargeable battery solutions.

Our family of "xx90" batteries was born out of support of military communications gear and has evolved into many use areas worldwide.



GOVERNMENT & DEFENSE



MEDICAL



SAFETY & SECURITY



ENERGY



INDUSTRIAL

“ Born out of support of Military communications gear ”

# NON-RECHARGEABLE

## UB0023

Ultralife's original BA-5390/U battery is a lithium manganese dioxide chemistry based battery designed in accordance with the U.S. Military performance Specification 49471/1.

This battery offers approximately 50% more capacity (22Ah) than a BA-5590 lithium sulfur dioxide battery (15Ah) which remains popular within the armed forces to this day. Unlike BB-5590's which have a liquid cathode, our UB0023 utilizes a solid cathode, resulting in a safer overall cell. The UB0023 battery has two independent battery sections with voltage ranges of 10 to 16.25VDC each. The end use device will configure these two sections in either parallel or series to obtain 15 and 30V outputs, respectively.



The battery has a single, coulomb counting state of charge indicator that is push button activated. The indicator is comprised of LED display that increases in brightness as the button is held down. This feature allows the user to obtain state of charge information in low-light environments. State of charge information allows the operator to determine if a battery has been used previously and how much original capacity remains.

The UB0023 has an effective operational range of -32°C to 72°C with a shelf life exceeding 5 years if stored properly. The battery has 3A slow blow fuses protecting each independent section, along with one-time blow thermal fuses designed to permanently disable the battery's output whenever it is exposed to temperatures exceeding 98°C. Lastly, this battery has a complete discharge device, which when pulled will completely discharge the battery to a safe level where it can be disposed of as non hazardous waste.

“  
Military specified  
performance”

## UB0031

The UB0031 is another one of Ultralife's innovations, combining the best of its proprietary primary chemistry and high energy density battery designs. The UB0031 is a short format version of the xx90 virtually cutting the batteries height in half making it perfect for portability and retrofits.

The UB0031 has the same electrical interface as the UB0023 for easy integration and retrofit and includes the same state of charge indicator and complete discharge device, except the UB0031 has only a single battery section making it operational with only a 15V output. The battery was recently specified by the U.S. Military under Performance Specification 32271/1 as a BA-5795/U and utilizes Ultralife's CFx/MnO2 hybrid chemistry made popular in its XR series of cylindrical cells.



The UB0031 is delivered with a removable extension, allowing it to fit and be used in legacy devices or be used as a smaller power source. The UB0031, has an operational range of -40°C to 60°C and contains auto-resettable, temporary thermal protection which activates above 80°C.

## UB0032

For those users requiring a higher energy density solution like the UB0031, but a dual voltage output like found in the UB0023, Ultralife presents the UB0032.

A full size xx90 primary battery that utilizes Ultralife's CFx/MnO2 hybrid chemistry, the UB0032 is an increased capacity version of the UB0023. It continues to have the same state of charge indicator and two independent battery sections to provide both 1V and 30V output configurations. It has approximately

50% more capacity (32Ah) than our UB0023 battery (22Ah), and over twice the capacity of a BA-5590 sulfur dioxide battery (15Ah). It is intended to be a direct replacement for existing BA-5390 and BA-5590 applications in radio communications and missile targeting systems with low load requirements.



# RECHARGEABLE

ULTRALIFE's new "-01" versions are inspired by the new MIL-PRF-32383/3(CR) U.S. Military Performance Specification and come with brand new labelling, complete with military mandated text and symbology.

As UBI-2590 batteries are extremely popular with non-military customers ULTRALIFE have also released commercially labeled versions with an additional suffix, "-CB" for quick international market delivery. The CB stands for Commercial battery!

## UBBL02-01

Ultralife's first BB-2590 offering has recently received a large upgrade as Ultralife part number UBBL02-01 but intimately referred to as the UBI-2590 core variant by its users. The UBBL02-01 is a rechargeable lithium ion xx90 battery and contains two independent battery sections which can be connected in either series or parallel by the end use device. In 30V 'series mode' the battery operates between 33.6V and 24.0V (28.8V average) and delivers 7.2Ah. In 15V 'parallel mode' the battery operates between 16.8V and 12.0V (14.4V average) and delivers 14.4Ah; making the UBBL02-01 a 250Wh battery!

The UBBL02-01 features two LCD displays which indicate the absolute state of charge for each battery section. The battery also comes with an array of digital and analog protection devices that prevent such reasonable foreseeable misuse cases as overcharging, over discharging, over loading, over temperature and short circuiting. The UBBL02-01 also contains auto resettable thermal protection rated at 70°C and permanent one time blow protection rated at 91°C. The Ultralife UBI-2590 is used in a wide range of applications including rugged, portable electronics, robotics, AUVs, UUVs, military communication devices, AN/PRC-117G, AN/PRC-117F, AN/PRC119 and AN/PSC-5D.



## UBBL02-01-CB



The "-CB" version of the UBBL02-01 has a redesigned, more marketable, label and meet numerous national marking requirements.

They are registered with various national agencies for regulatory compliance to facilitate importation into US and Canadian medical markets, as well as France, Switzerland, South Korea and Japan commercial markets. Such certifications include IEC 62133:2012 and the EU Directive on batteries and accumulators (2006/66/EC).

## UBBL10-01

The UBBL10-01 is the exact same battery as the UBBL02-01 introduced earlier but with the important addition of Ultralife's SmartCircuit™ technology that allows compatible devices and chargers to communicate with the battery via its SMBus v1.1 compliant interface.

The state of charge methodology and algorithm used in the UBBL10-01 is a vast improvement over its predecessor the UBBL10. Adapting an impedance measuring gas gauge over a coulomb counter heightens the indicators accuracy to within 2% tolerance for error.

The UBBL10-01 is used in a wide range of military applications including robotics, AUVs, UUVs and military communications such as the AN/PRC-117G, AN/PRC-117F, AN/PRC119 and AN/PSC-5D, especially applications that require remote monitoring of critical battery information via a host device. The UBBL10-01 can also be charged using SMBus compatible "smart" chargers such as the Ultralife UCH0053/54 and UCH0057.



## UBBL10-01-CB

Preserving the relationship established earlier with the UBBL02-01 and UBBL02-01-CB, the UBBL10-01-CB is the exact same battery as the UBBL10-01, but with the addition of that similar redesigned, more marketable, label and numerous national marking requirements as the UBBL02-01-CB.



The UBBL10-01-CB is registered with various national agencies for regulatory compliance to facilitate importation into US and Canadian medical markets, as well as France, Switzerland, South Korea and Japan commercial markets. Such certifications include IEC 62133:2012 and the EU Directive on batteries and accumulators (2006/66/EC).

## UBBL13-01

The UBBL13-01 is the highest energy density offering available in the Ultralife UBI-2590 product family.



The same two independent battery sections found in the UBBL02-01 and UBBL10-01 are able to produce 10Ah of useable capacity in the UBBL13-01. This means that when the battery is configured by the end use device in a parallel mode (or 14.4V output), the user has access to 20Ah of discharge capability. Series mode connections result in a 28.8 average voltage output or 288Wh of useable energy! This is all possible without changing the dimensions or physical construction of the UBBL10-01 battery at all.

## UBBL13-01-CB

The UBBL13-01-CB comes with the same style commercial labeling and regulatory compliance as the UBBL02-01-CB and UBBL10-01-CB batteries do, but with the increased capacity

of its two independent battery sections, which can be connected in either series or parallel, as the UBBL13-01.

Also included is the same SmartCircuit™ technology found in the UBBL13-01. This is a perfect solution for customers needing the most energy density possible and looking for shipments into international markets without the exception from dangerous goods classifications.



## UBBL18

The UBBL18 variant of our UBI-2590 product is a simpler battery that does not have state of charge or SMBus capability. The battery still provides electronic over voltage, under voltage, and short circuit protection as the legacy UBBL02 battery did, with a 10A maximum continuous discharge current capability per battery section.

The UBBL18 also contains auto resettable thermal protection rated at 70°C and permanent one time blow protection rated at 91°C.

The UBBL18 offers a lower cost alternative to the enhanced product line.



## UBBL09/B



The UBBL09/B is a lower voltage offering our of the UBI-2590 product family.

It has a voltage range between 8.5 and 12.6V per battery section (11.3V average) and a combined energy rating of 230Wh, making this equally comparable in energy density with the rest of the full size Ultralife 2590 offerings. The lower voltage range of the battery makes the UBBL09/B a superb option for Military

devices that cannot operate above 28VDC, such as the Javelin/CLU, as well as an effective commercial option for Sealed Lead Acid replacement.

The UBBL09/B continues to have dual state of charge indication and SMBus contact available for communication based on our SmartCircuit™ technology, where users can predict runtimes from its 10.4Ah per section capacity.



## UBBL31

The UBBL31 is specifically designed for use by the United Kingdom (UK) forces and has an approved safety case for use by the UK Ministry of Defence. It has performance characteristics similar to the UBBL10/B, but has a push button state of charge and state of health displays based on our SmartCircuit™ technology.

The state of health improves the typical state of charge display by adding a display that signifies other important information to the user. The battery can alert the user that the battery is ready to go, its gas gauge is in need of calibration, it has been exposed to extreme temperatures, it is beyond the advertised cycle life or has been compromised in some way. The UBBL31 uses a coulomb counting gas gauge for each section with a micro-controller that compiles the data into a single state of charge register for broadcast of its U.K. Military specified semi-smart serial battery interface.

The UBBL31 has auto resetting electronic protection against over charge, short circuit, over discharge, and excessive temperatures. The battery contains auto reset able thermal protection rated at 70°C and permanent one time blow protection rated at 91°C.

The UBBL31 includes provisions to communicate with a specific series of UK fielded radios and has a safety case released from the UK MOD.

## UBBL36



The UBBL36 is the rechargeable version of the Ultralife BA-5795/U battery, the UB0031. It is a smaller format, single section battery with a voltage range of 10 to 16.8V per section. This makes the UBBL36 exactly half the energy of the UBBL10-01 at 125Wh. The maximum recommended charge

rate is 9A continuous, with a pulse of 18A for 5 seconds. It has a single state of charge LCD indicator with SMBus contacts for communication.

The UBBL36 has the same auto resetting electronic protection against overcharge, short circuit, over discharge, and excessive temperatures as its larger counterparts in the UBI-2590 product family. The battery also contains auto reset able thermal protection rated at 70°C and permanent one time blow protection rated at 91°C.

The UBBL36 ships with a removable adapter that allows it to be used anywhere a 15V mode BA-5390 or BB-2590 would be used. If the adapter is not required it can easily be removed to decrease the carrying weight and volume.



## UBBL38

The UBBL38 is the first fully excepted, non-class 9 dangerous goods BB-2590 battery available. Ultralife has packed as much energy as possible in our UBI-2590 package (83Wh), keeping the same rugged, military tough case construction and SmartCircuit™ Technology as the legacy UBBL10 battery it was built from.

Being a dual voltage output battery, it can also be configured by the end use device in either series (20 to 33.6V, 28.8V average) or parallel mode (10 to 6.8V, 14.4V average) connection. With each independent battery section having only 2.9Ah of useable capacity, this battery is perfect for applications that require unrestricted transportation.

## UBBL62



After seeing the popularity of the short format UB0031 and UBBL36, it was only natural that Ultralife provide a dual voltage compliment as well. Enter the UBBL62.

Keeping the same form factor as the BA-5795/U and the same interface as the BB-2590, the UBBL62 offers two independent battery

sections which can be connected in either series or parallel by the end use device. In a series configuration the battery operates between 25.2V and 15V (21.6V average) and delivers 5.8Ah. In 15V 'parallel mode' the battery operates between 12.6V and 7.5V (10.8V average) and delivers 17.4Ah. This will yield the same energy as the UBBL36 at 125Wh, but because of the isolated, independent battery sections when inoperative, the battery is labeled as "2x 63Wh" to allow shipment of the battery as excepted from dangerous goods classification, making this battery perfect for applications that require unrestricted transportation.



# ACCESSORIES

Ultralife has developed an extensive portfolio of chargers, adapters, and accessories to make the battery family easy to use and integrate within new applications.



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# NOTES

# CHARGERS

Several chargers exist, from desktop non-rugged styles like the CH0002, to the military hardened multi-bay chargers CH0003 and CH0004. Individual smart XX-2590 batteries can also be set automatically to 20% state-of-charge for shipment by air (using the UCH0057-01).



Please contact Ultralife for additional information.

# CABLES

Ultralife offer several cables to ease integration of the battery family. Cables are available for 15V and 30V modes, as well as cables that are universal. Ultralife offer cables that have integrated SMBus contacts for communication (UCA0039).



# ADAPTORS



Ultralife offer panel mount connectors, battery boxes that gang several batteries together, UPS Systems, and components for integration.

Please contact Ultralife for additional information.

NOTE: BATTERY CASE COLOR MAY CHANGE AT ANY TIME SOLELY AT ULTRALIFE'S DISCRETION





**NOTES**



**NOTES**

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