Reformed Methanol Fuel Cell (RMFC) technology

Fuel Cells: XX55, BLADE 50W and Scalable 0-165W BLADE

Accessories : Cartridges, Cords and Adapter, Clic-It Refiller
In 2011, Bren-Tronics, Inc. acquired the assets of UltraCell LLC, leveraging a combination of mutually beneficial products to increase warfighter effectiveness and safety. We are the first to commercialize RMFC technology to provide clean renewable energy to power portable electronics.

**Reformed Methanol Fuel Cell**

The fuel cell is powered by a fuel mixture of ultraclean, biodegradable *methanol* and pure *water*. Our RMFC proprietary technology does not contain materials which are damaged at temperature extremes.

- Single fuel mixture which operates from –30°C to +50°C, no specific desert and winter fuel is required.
- Can be stored in OFF mode between –30°C to +60°C without any special procedure.
- Can startup from a –20°C cold soak without additional thermal kits.
The RMFC Fuel Cells reform the liquid methanol into hydrogen gas which is supplied directly to the fuel cell for electrical power production. The fuel cells combine the practical advantages of methanol fuel packaging, storage and delivery with the energy advantages of hydrogen.

+ Autonomous operation with sleep mode functionality.
+ Reduces weight: 70% or more weight savings for a 72-hour mission.
+ Reduces logistic burden: Powers different devices at different voltages.

+ Extended runtime: Hot swappable cartridges and optional long runtime external fuel tanks.
+ Fuel logistic chain: From Operational to Depot Level
Power system selection

Bren-Tronics, Inc. is the company for all your power needs. Depending on your mission, we are able to provide the appropriate military power solution thanks to our full range of products and our long experience.

The energy source must be reliable and provide the soldier with complete energy independence for the duration of the mission, without loading heavy weights and large volumes that will limit the mobility and effectiveness.

The graph on the next page shows the evolution of the weight to carry per mission day for a typical permanent device consumption of 50W using different power solutions.

Fuel Cell

Lithium Ion Batteries

Solar station

Lead acid batteries
XX55 Reformed Methanol Fuel Cell

50W continuous power (80W peak with battery)
12V-33V output voltage (software programmable)
LCD display for runtime and fuel level
3 modes operation ON/OFF/SLEEP
27.2 x 20.6 x 9.9 cm w/o battery and cables
3.0Kg w/o battery, cartridge and cables
-20°C to +50°C Operating Temperature at Nominal Power
-40°C to +60°C Storage Temperature

Ultra Compact – Highly Portable
BTP-70829

BLADE 50W Reformed Methanol Fuel Cell

50W continuous power
10V-33V output voltage (software programmable)
LCD display for runtime and fuel level
3 modes operation ON/OFF/SLEEP
39.2 x 26.2 x 19.4 cm
5.3Kg w/o battery or cartridge
-30°C to +50°C Operating Temperature at Nominal Power
-40°C to +60°C Storage Temperature

Several BLADE can be used in parallel

Highly Durable – Portable – Battle Proven Housing
BTP-70905
SCALABLE BLADE 0-165W

Reformed Methanol Fuel Cell

Standard power options: 75, 100, 150W
10V-33V output voltage (software programmable)
LCD display for runtime and fuel level
3 modes operation ON/OFF/SLEEP
33.5 x 24.9 x 19.0 cm
10.5Kg for a 150W system w/o battery or cartridge
-30°C to +50°C Operating Temperature
-40°C to +60°C Storage Temperature

Several BLADE can be used in parallel
Capable of operating while being buried using snorkel (see page 11)
Highly Durable – Portable – Battle Proven Housing
BTP-70906-100 and BTP-70906-150

Cartridge Refiller

CLIC-IT Cartridge Refiller

The system intakes certified fuel from Ultracell approved fuel containers and refills the 550cc Cartridge in 10 minutes, the XRT-75 Cartridge in 23 minutes and the XRT-400 in 90 minutes.
Clic-It refilling fuel sources: XRT-200, XRT-400 and XRT-1000
AC and DC inputs
33.5 x 24.9 x 19.0 cm
8.4Kg
-30°C to +50°C Operating Temperature
-40°C to +60°C Storage Temperature

BTP-70922
550 cc Methanol Cartridge
Capacity 480 Whr
Typical use with the XX55.
Provide 11 hours continuous power at 50W.
620gr
BTP-70908-5

XRT-75 Methanol Cartridge 1.2L
Capacity 1200 Whr
Typical use with the XX55 and BLADE.
Provide 24 hours continuous power at 50W.
1.4Kg
BTP-70908-3

XRT-400 Tactical Methanol Cartridge 2 Gallon
Capacity 5000 Whr
Typical use with the BLADE.
Provide 5.2 Days continuous runtime at 50W.
5.9Kg
BTP-70908-6

Large Cartridges

XRT-200 Methanol Cartridge 1 Gallon
Capacity 2500 Whr
Typical use with the BLADE.
Provide 2.6 Days continuous power at 50W.
3.6Kg
BTP-70908-2

Information subject to change without notice.
XRT-1000 Methanol Cartridge 5 Gallons
Capacity 12 500Whr
Typical use with the BLADE.
Provide 13 Days continuous runtime at 50W.
16.8Kg

BTP-70908-1  one Port
BTP-70908-9  two Ports (to be chained)
Larger Cartridges available upon request

Accessories

90uM Adaptor — Micro Manager
Connect Fuel Cells in parallel with BB-2590/U.
Fuel Cell charges battery and battery supplies load.
Use UltraCell Auto Hybrid/Sleep Mode Functionality
Provide two Power Ports 12-16.8V outputs
BTP-70918

4-Port Mega Manager
Connect Fuel Cells in parallel with BB-2590/U.
Fuel Cell charges battery and battery supplies load.
Use UltraCell Auto Hybrid/Sleep Mode Functionality
Provide four Power Ports 12-16.8V outputs
Provide two 1A USB Power Ports
BTP-70918

Cigarette Lighter Adapter
Allows devices with cigarette lighter connectors to be powered using the Fuel Cell
14.4V output
BTP-70829-1
Pass-Thru Adapter for MBITR/Falcon.
One bay radio charger.
It simultaneously provides power to operate the transceiver and charge the battery with the Fuel Cell.
10-36VDC input
7.1 x 4.4 x 8.1 cm
300gr
BTX-70716S + BTA-70716S-1

Distributed Smart Power Management
Directly connected to the Fuel Cell it provides continuous power to operate the transceiver for a very long runtime.
29.5V output voltage (40W to 80W power level)
BTP-70931 30V DSP, Connect to BT-70884BE
BT-70884BE : PRC-117F Battery

Trailer Hitch (ISO) Cable
Allows devices such as battery chargers with trailer hitch connectors to be powered using Fuel Cell. (contact Bren-Tronics for more information)
BTA-70829-5

Laptop Adapter cable
Connect Toughbook Laptop to Fuel Cell
BTP-70932 GETAC COMPUTER CABLE
To order: sales@bren-tronics.com

**BLADE SNORKEL**

The Blade Snorkel is a fuel cell system that is capable of operating while being buried. Designed for very discrete and low profile operation.

BTA-70906-x

**XX55 SNORKEL**

The XX 55 Snorkel is a fuel cell system that is capable of operating while being buried. Designed for very discrete and low profile operation.

BTA-70829-7

**Fuel Cell Pouches and backpacks**

MOLLE compatible with all Fuel Cell

BTP-70929 - BTP-70933 - BTK-70951-F2

**Cartridge Carrying Case**

MOLLE compatible with all cartridges

BTP-70XXX

**XRT Fuel Tank Adapter**

Fuel tank interconnect slides into XX55 and provides fuel line connection to fuel tank via quick connect nozzle.

BTP-70829-4