

# Satellite UPS System

Designed to provide a stand alone solution to underground power requirements.



MS-SD4-20-SIV-36  
with Satellite UPS

MineARC Systems - Built for Safety.

[www.minearc.com](http://www.minearc.com)



# Company Profile

MineARC Systems is the global leader in the manufacture and supply of emergency safe refuge solutions for the mining, tunnelling, chemical processing and disaster relief industries.

With 20 years' experience, our dedication to ongoing research and development is driven by our key focus to continually offer the best and most advanced safety solutions on the market.

Our team of qualified engineers, electrical designers and technical experts form a global network across several international locations including;

- Perth, Western Australia
- Johannesburg, South Africa
- Dallas, Texas
- Santiago, Chile
- Beijing, China
- Barcelona, Spain
- Guanajuato, Mexico

This allows MineARC to provide 24 hour service and engineering support to our expanding list of clients in over 60 countries across the globe.

All MineARC Refuge Chambers and Safe Havens comply with the highest international regulations and recognised 'world's best practice' industry guidelines. Our key focus on quality control and product advancement has meant that MineARC Refuge Chambers have successfully saved lives in multiple real life industrial emergencies around the globe.

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Bureau Veritas ISO 9001:2008 Quality Management Systems



MineARC HRM Refuge Live Risk Assessment Testing



Australian C-Tick Standards: AS4100-1998, AS3570.1-18, AS2208, AS3000, AS1716-15



Canadian Standards Association (CSA)



United States National Electrical Code (NEC) 2013/14



European CE Certified to Machinery Norms

Helping safeguard miners in over 60 countries, across seven continents, the MineARC MineSAFE series is the world's most trusted refuge chamber in metal (hard rock) and non-metal mines.

Emergency refuge forms an integral part of an underground mine's wider Emergency Response Plan (ERP). Fires, explosions, rock-falls, flooding and the release of smoke and other forms of toxic gas are the types of incidents that occur all too frequently, despite the high levels of planning and the safety precautions in place.

In these types of emergencies, when evacuation is no-longer safe or practical, emergency refuge is designed to provide a safe and secure 'go-to' area for personnel to gather and await extraction. MineARC Refuges have been successfully used around the world in multiple mine and tunnelling emergencies to save lives.

The Satellite UPS features a unique, portable battery bank, removing the need for battery and inverter storage at the rear of the refuge chamber. Major features of the Satellite UPS System includes safer battery replacement, charge balancing, temperature cooling, and improved battery monitoring and diagnostics through MineARC's GuardIAN.



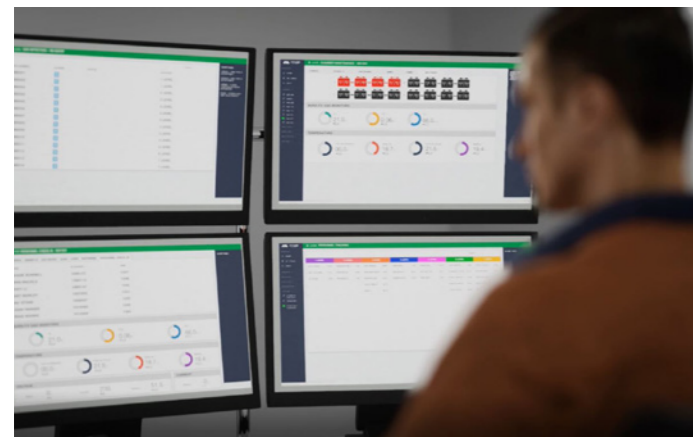
MS-SD4-20-SIV-36 with Satellite UPS System

# Satellite UPS System



MineARC's Satellite UPS System has been engineered specifically for use in conjunction with refuge chambers; designed to provide a solution to manual handling injuries and to ensure batteries perform at full capacity for their expected life span.

MineARC have nominated a battery life guarantee of three years to instil confidence in the design approach to battery management. By ensuring atmospheric conditions are optimal, monitoring battery activity and adding electronics to the charging system, the Satellite UPS System limits all primary aspects of battery degradation and allows MineARC's high quality batteries to operate as intended. It would be expected that MineARC batteries will far exceed the three- year guarantee period, with some calculations indicating periods of as long as seven years.



## Real-Time Remote Monitoring

When used in conjunction with Guardian, the MineARC Satellite UPS System allows for real-time, remote monitoring of each individual battery.

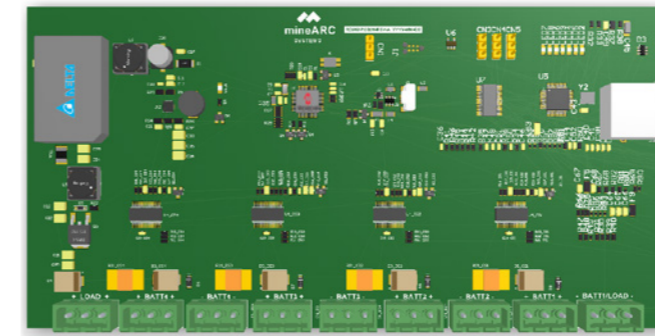
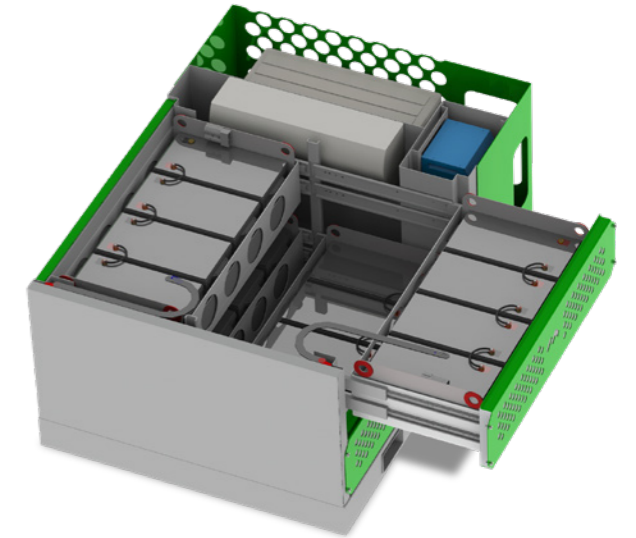
Battery faults can be identified immediately via the Guardian Dashboard and Alert Feed, with auto-generated event notifications sent directly to any personal device. Voltage and temperature diagnostics for each individual battery within a string can also be viewed via a graph, highlighting any fluctuations over the past 24 hours.

# Satellite UPS System

## Safer Handling of Batteries

Soft tissue injury caused by the manual handling of batteries during replacement is all too common in underground mines. Injuries are generally caused by factors including the design and position of battery boxes, the weight of the batteries themselves, and the frequency in which batteries require replacement.

The portable design of MineARC's Satellite UPS System means that it can be easily brought to the surface for maintenance or battery change-out. Reinforced sliding draws allows for safer lifting techniques during installation and removal of batteries; reducing risk of injury during battery replacement.



## Charge Balancing

A common issue for many mine sites with refuge chambers is overcompensation of batteries within a thread. Delays or poor replacement practices often result in the need to replace a whole string of batteries; a costly and avoidable exercise.

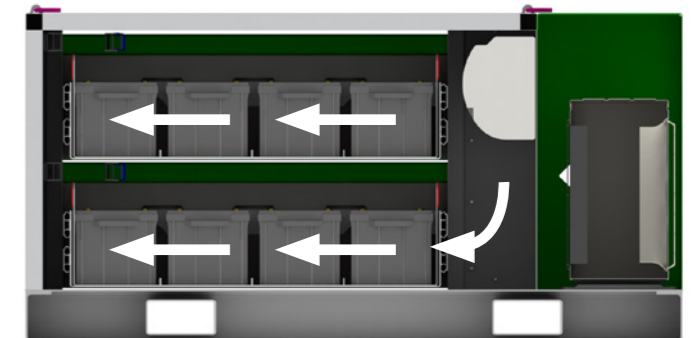
MineARC's Satellite UPS System features battery balancing technology that absorbs the charge from higher voltage batteries and transfers that charge to lower voltage batteries, thereby ensuring that all batteries within a string are charged equally. Balancing is achieved through the use of Linear Technology, LTC3305, and a Super Capacitor that is sequentially connected across the batteries in the stack.

## Integrated Air-Conditioning

Heat can have a significant effect on the performance and life-span of a battery, however high temperatures cannot always be avoided underground.

MineARC's Satellite UPS System is a fully enclosed box that features an integrated air conditioner to provide complete temperature control.

The air conditioner will automatically maintain a constant temperature of 25°C within the battery box, protecting the batteries from over heating and ensuring they perform at full capacity for their expected life-span.





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