

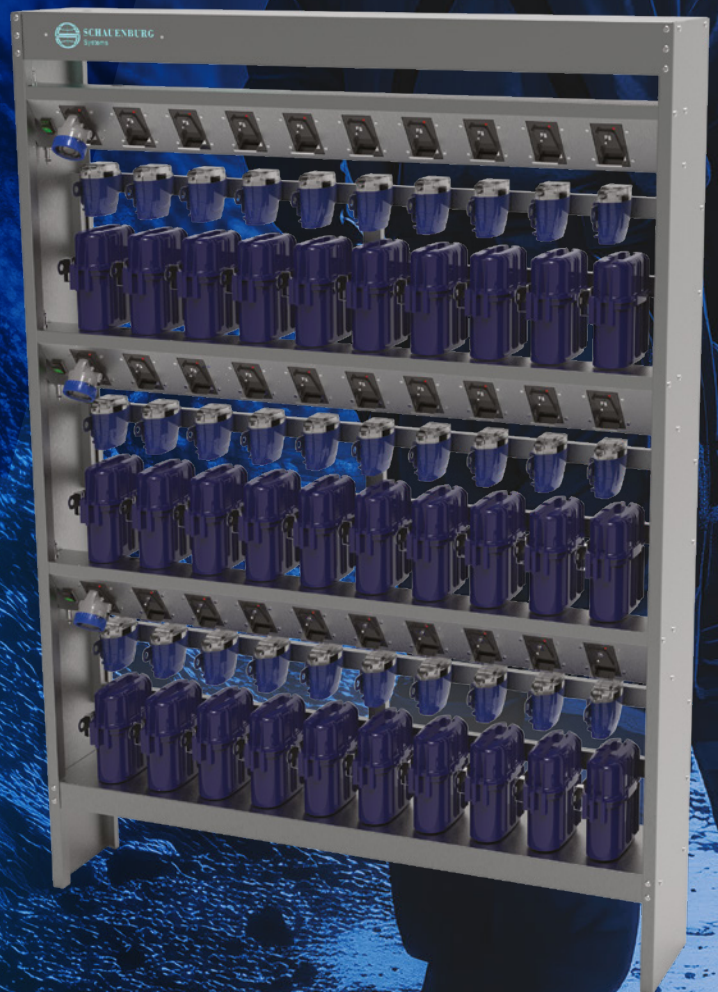
*Innovation that Saves*

## SCHAUENBURG CAPLAMP SMART CHARGING RACK

### PURPOSE-BUILT FOR THE SOUTH AFRICAN UNDERGROUND OPERATIONS

The Schauenburg Systems Caplamp Smart Charging Rack is engineered specifically for the demanding and highly regulated conditions found in South Africa's underground mining Lamproom sector. Designed for durability, safety, and operational intelligence, the rack provides a modernised approach to charging, monitoring, and managing miners' cap lamps at scale.

Underground environments present unique challenges: harsh temperatures, high humidity, dust, vibration, and the need for absolute reliability of safety-critical equipment such as cap lamps. The Smart Charging Rack addresses these challenges through a robust steel structure, intelligent charging architecture, and real-time monitoring capabilities that ensure every lamp issued underground is safe, fully charged, and performing optimally.



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## KEY PROBLEMS SOLVED IN THE UNDERGROUND MINING CONTEXT

### 1 Ensuring Lamp Availability and Charge Reliability

Traditional charging stations often lack visibility into whether lamps are charging correctly or reaching full charge. The Smart Charging Rack uses PWM-controlled intelligent charging with automatic fast-charge and trickle-charge modes, ensuring every lamp meets required charge levels before deployment. This reduces shift delays and eliminates the risk of issuing undercharged or faulty lamps.

### 2 Reducing Operational Downtime and Maintenance Burden

Dust, humidity, temperature fluctuations, and physical wear are normal in lamp rooms. The rack's industrial-grade construction, intuitive LED indicators, and low-maintenance electrical design significantly reduce failure rates and routine upkeep. Yearly dust-cleaning and simple contract maintenance keep the system running smoothly, decreasing downtime and technician workload.

### 3 Real-Time Visibility Through SmartMine Integration

With per-point voltage, current, distance (presence detection), temperature sensing, and NFC data retrieval capability, the Smart Charging Rack introduces full digital visibility into the lamp-charging environment. Supervisors can identify abnormal charging behaviour, lamp defects, or environmental risks early, directly from the dashboard, enabling data-driven safety and asset-management decisions.

### 4 Enhancing Safety Compliance

By automatically detecting charging status, lamp presence, and completion, the system ensures that users only receive lamps that are fully charged and safe for underground use. Over-charge and short-circuit protection add additional safety layers, supporting compliance with mine health and safety regulations.

### 5 Scalable Charging for All Lamproom Operation Sizes

Available in 30-way, 60-way, and 120-way 200-Way configurations, the rack accommodates lamp rooms of all sizes, from smaller operations to large multi-shaft mines. Modular architecture supports future expansion and long-term fleet growth without redesigning infrastructure.



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