



# MINE SAFE

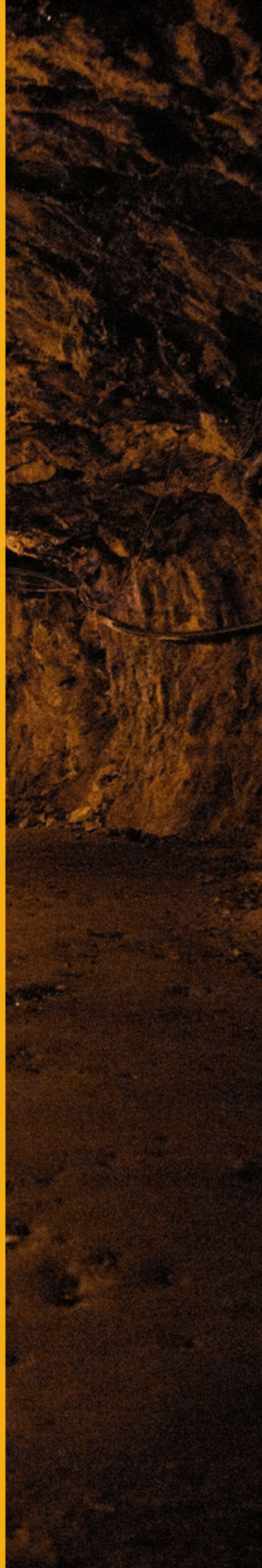
## UNDERGROUND COLLISION PREVENTION & PERSONNEL SAFETY SYSTEMS

· **DETECT** · **PROTECT** · **CONNECT**

HaloGuard & HaloTag BY MINE SAFE GLOBAL

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## ABOUT MINE SAFE GLOBAL

# THE CORE SAFETY SYSTEMS MINING OPERATIONS RELY ON

Our solutions include an integrated range of technologies engineered to safeguard operators, infrastructure, and underground personnel.

Our expertise is built on years of hands-on experience across diverse mining environments. We work closely with each client to understand their unique site conditions, challenges, and objectives. This collaborative approach allows us to deliver tailored, intelligent solutions that safeguard your workforce, protect your assets, and enhance operational performance.

## THE PRINCIPLES THAT GUIDE US

We listen, adapt, and respond with solutions shaped around your operational goals.

### PEOPLE

We believe people matter, and what we do is grounded in relationships that foster trust and respect.

### INTEGRITY

We operate with transparency, accountability, and honesty in everything we do.

### INNOVATION

We continuously develop new technologies that keep our clients ahead of emerging risks.

### RESPECT

We treat every individual and partner with dignity and professionalism.

### EXCELLENCE

We deliver quality solutions that meet the strictest standards of performance and safety.

### COLLABORATION

We work hand-in-hand with our clients and relevant industry leaders to understand their needs and deliver tailored outcomes.

All of our collision avoidance solutions are proudly designed and developed in South Africa, reflecting our commitment to local innovation and proven reliability.

# UNDERGROUND COLLISION PREVENTION SYSTEMS

## OVERVIEW

These advanced underground safety systems deliver comprehensive collision prevention and personnel protection specifically engineered for demanding underground mining environments.

### 1. HALOGUARD: UNDERGROUND COLLISION PREVENTION SYSTEM

Next-generation underground collision prevention system providing 360-degree awareness and automated machine intervention in confined underground spaces.

### 2. HALOTAG: UNDERGROUND PERSONNEL SAFETY DEVICE

Wearable safety technology that ensures every underground worker is continuously detectable and locatable, integrating cap lamp functionality with advanced pedestrian detection capabilities.



# 1. HALOGUARD UNDERGROUND COLLISION PREVENTION SYSTEM

## OVERVIEW

HaloGuard delivers underground collision prevention and awareness technology for machine-to-machine and pedestrian-to-machine protection in demanding underground environments.

The Mine Safe Global HaloGuard is an advanced solution engineered to meet and exceed ISO 21815, integrating sensing, control, and communication technologies to prevent collisions, enhance operator awareness, and provide auditable safety records.



## KEY FEATURES & BENEFITS

### COMPREHENSIVE COLLISION PREVENTION

Multi-layer detection combining Prox-D sensors, LiDAR technology, and RF communication for 360-degree awareness with automated machine intervention and real-time alerts.

### INTELLIGENT CONTROL ARCHITECTURE

L9 Gen 2 Controller with dual CAN bus channels, Wi-Fi connectivity, and an Access Controller Unit for driver identification and authorised operation, ensuring secure, connected, and intelligent machine control.

### ADVANCED SENSOR TECHNOLOGY

Prox-D sensors and ranging LiDAR units work together to deliver high-precision detection of blind spots and pinch points, ensuring comprehensive situational awareness around the machine.

### TRAFFIC MANAGEMENT & DATA LOGGING

Beacon Network and Wi-Fi Transfer Station enable intelligent zone management, automatic log synchronisation, and detailed event reconstruction for improved safety oversight and analysis.



## COMPLIANCE & DATA MANAGEMENT

- ✓ **ISO 21815 Compliant:** Meets global communication and functional protocol standards for collision avoidance systems and machine control interface integration.
- ✓ **Complete Event Reconstruction:** Comprehensive logging of all detection events, alerts, interventions, and operator responses enables detailed post-incident analysis.

## MODULAR SYSTEM COMPONENTS

- ✓ **L9 Gen 2 Controller/Display:** Features dual CAN bus channels for machine and ISO 21815 safety networks, Wi-Fi for over-the-air updates and log synchronisation, and onboard storage for machine and ISO logs.
- ✓ **The Concentrator:** A data aggregation hub featuring dual CAN bus channels for vehicle and ISO networks, USB and RS232 debug ports for maintenance, and redundant log storage for reliability.
- ✓ **Prox-D Sensors:** Utilise Time-of-Flight technology, with multiple sensors strategically placed around each machine to provide full 360-degree coverage.
- ✓ **LIDAR Units:** Precise monitoring of blind spots, pinch points, and static obstacles.
- ✓ **Low-Profile Antenna:** Supports GPS functionality for surface operations and provides RF communication for vehicle-to-vehicle and vehicle-to-pedestrian connectivity underground.
- ✓ **Access Controller Unit (ACU):** Provides driver identification to prevent unauthorised operation, ensuring each ignition cycle is linked to a verified operator ID.
- ✓ **Beacon Network:** Defines traffic management zones throughout underground operations, creating virtual boundaries and controlled areas that integrate with site safety protocols.



## 2. HALOTAG: UNDERGROUND PERSONNEL SAFETY DEVICE

### OVERVIEW

HaloTag delivers continuous personnel detection, location tracking, and emergency response capabilities for underground worker safety in demanding industrial environments.

The Mine Safe Global HaloTag is an advanced cap lamp integrating pedestrian tag technology, ensuring every underground worker is continuously detectable and locatable through advanced detection, communication, and data logging capabilities.



### KEY FEATURES & BENEFITS

#### COMPREHENSIVE SAFETY NETWORK

Continuous detection and identification with real-time location tracking, Wi-Fi Transfer Station integration for seamless monitoring, and complete personnel accountability.

#### ACTIVE COLLISION PREVENTION

Audible and visual alerts warn both pedestrian and machine operators when mobile machines are nearby, with seamless integration to HaloGuard-equipped vehicles for automated intervention.

#### MULTI-TECHNOLOGY PLATFORM

Equipped with GPS for surface positioning, Proximity Detection for underground tracking, Radio Frequency for communication, Wi-Fi for data transfer, and Bluetooth for local connectivity.

#### INTELLIGENT DATA MANAGEMENT

Internal memory logging critical alarms, device status, and interactions with dual-layer backup to Wi-Fi Transfer Stations for pattern analysis and preventive safety measures.



## SAFETY & OPERATIONAL FEATURES

- ✓ **Real-Time Battery Status Alerts:** Continuous monitoring ensures personnel are never left without functioning safety equipment, with alerts sent to both user and control room.
- ✓ **Interactive Emergency Buttons:** Dedicated buttons for routine communication and panic or distress mode provide workers with immediate access to help when needed.
- ✓ **Audible and Visual Alerts:** Multi-directional warning system alerts both the pedestrian and nearby machine operators to prevent potential accidents and collisions.
- ✓ **Seamless Lamp Room Integration:** Facilitates easy issuing and testing procedures while offering compatibility with both underground and surface environments for operational flexibility.
- ✓ **Hybrid Operational Capability:** Designed to operate seamlessly in surface mining or underground mining environments, adapting dynamically without manual intervention.
- ✓ **HaloGuard System Integration:** Works directly with HaloGuard-equipped vehicles to trigger automated interventions when personnel enter hazardous zones.

## DATA LOGGING & DIAGNOSTICS

- ✓ **Self-Diagnostic Software:** Real-time monitoring and alerting of potential malfunctions maintains continuous operational reliability and optimal device performance throughout service life.
- ✓ **Tracking Beacon Integration:** Enhances ability to track and identify individuals within underground networks, ensuring every person is accounted for and visible at all times.
- ✓ **Internal Memory Storage:** Logs local data, including critical alarms, device status, and interactions, to create comprehensive records for analysing and reconstructing events.
- ✓ **Emergency Event Reconstruction:** Comprehensive data logging allows detailed post-incident analysis to understand what occurred and prevent future incidents.
- ✓ **Dual-Layer Data Management:** Robust solution for maintaining integrity and availability of critical safety information with automatic backup to Wi-Fi Transfer Stations.



# COMPLIANCE & CERTIFICATIONS

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Mine Safe Global solutions meet the highest regulatory and technical standards required across the mining sector.



## ISO 21815-Compliant

Ensures full compliance with the global communication and functional protocol for Collision Prevention (CxP) and Machine Control Interface (MCI) integration.



## MOSH CPS Blueprints

Aligns with MOSH standards for the design and implementation of collision prevention systems.

# DESIGNED FOR ZERO HARM

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- ✓ **Continuous Protection:** 24/7 monitoring of all underground personnel and equipment
- ✓ **Proactive Intervention:** Automated machine response before incidents occur
- ✓ **Complete Accountability:** Logging for every shift, every worker, every machine
- ✓ **Proven Technology:** Deployed across underground operations in multiple countries
- ✓ **Regulatory Compliance:** ISO 21815-compliant and MSHA Section 16.7 ready

## SEAMLESS UNDERGROUND EQUIPMENT INTEGRATION

Mine Safe HaloGuard and HaloTag systems are compatible with all major underground mining equipment, including LHD (Load-Haul-Dump) loaders, underground drill rigs, bolters, scissor lifts, underground utility vehicles, and personnel carriers. Our modular architecture adapts to any underground machine configuration.





## CONTACT DETAILS

### TALK TO A SAFETY EXPERT. MINE SAFE GLOBAL CAN HELP.

Request a demonstration, and a Mine Safe Global expert will be in touch to provide the right solution for your operation.

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## REGIONAL & INTERNATIONAL PRESENCE

We operate across Southern Africa and serve mining operations in strategic international markets around the world.



Learn more

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