HazardAvert®
Proximity Detection
For Underground Coal Mining
Background

HazardAvert® proximity detection is designed to increase safety awareness and prevent accidents and injuries by detecting when a person or vehicle enters the “danger zone” around a piece of operating machinery. The system emits an audible and visual alert and may be programmed to automatically slow or stop the machinery when the zone is breached.

How it works

- HazardAvert establishes a magnetic marker field—or zone—around machinery using a device called the generator. One or more generators may be fitted onto machinery and create fields designated as the ‘WARNING ZONE’ and ‘DANGER ZONE’. This marker field can encompass the entire machine and its turning radius, or be specific to certain areas.

- Personnel wear a Personal-Alarm Device (PAD) which detects and measures the magnetic marker field to determine their proximity to the machine, and alert them of possible danger to their safety.

The PAD is available in two configurations:

  · The PAD attaches to the miners belt and has an optional clip-on ‘warning module’ that attaches to the hard hat. The warning module emits audible and visual alarms.
  
  · The PAD comes as an integrated component of the Integrated Communications Cap Lamp (ICCL) supplied by Mine Site Technologies (MST).

Marker Fields – Zoning

- Single or multiple generators can be used on the same machine.

- On smaller equipment, a single generator defines a zone that covers all parts of the machine and its turning radius.

- Multiple generators can be used to create complex zone shapes. These are implemented according to user preference and to accommodate tight working spaces.

- Marker fields can be static or dynamic:
  
  · Static markers are set at installation and remain constant
  
  · Dynamic markers vary during operation based on inputs from the vehicle or operator.

- Shaped SILENT ZONES can be created inside the marker field to allow operators to function in specified areas, operators cabs and close to the machine without activating the alarm or disabling the machine. As soon as an operator exits this zone however, they will immediately trigger the system.

* Examples Field Sizes - Users must evaluate the correct field sizes for their operation.
Key Features

- HazardAvert generators can be installed on any and all types of mining machinery and vehicles.
- A single PAD works with all equipment generators throughout the mine.
- Multiple machines and multiple miners can work closely without any system conflict.
- HazardAvert® uses low-frequency signals that are not affected by the environment or other objects.
- Low-frequency signals pass through almost anything, including coal, rock, dust and water.
- Highly accurate and repeatable zones created by generators.
- Zones may be shaped to suit equipment.

Data Recording and the Tracking Display POD (TDP)

- All data is recorded and saved to the TDP’s database and can be retrieved as required.
- The system tracks all personnel and equipment in the vicinity of the machine.
- Personnel entering and leaving the zones and the duration of time spent in the zone are recorded and logged.

Robust, Durable Design for Coal Mining

- Generators, controllers and displays are housed in rugged armoured enclosures which are sealed against water ingress.
- Components are designed to withstand long term heavy vibrations and shocks.
- There are no exposed antennas.

Applications

- Continuous Miners
- Shuttle Cars
- Scoops
- Feeder Breakers
- Load Haul Dumps
- Haul Trucks
- Roof Bolters
- Light Duty Vehicles
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