



IntelliZone®

PROXIMITY DETECTION

UNDERGROUND COAL



- **For all section equipment and light-duty vehicles**
- **Proven in U.S. coal mines**
- **Robust & compact locators**
- **Precise worker location & dynamic zones**

The Matrix IntelliZone® proximity detection system allows users to create customized Caution, Shutdown and Operator Zones around all mobile equipment. IntelliZone technology detects workers in low-visibility or obscured line-of-sight locations while allowing the operator to work in a safer location.

All components of the Matrix IntelliZone system are extremely durable, simple to operate and easy to maintain.

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- **SharpZone™ technology** minimizes false alarms and allows long-range, through-curtain detection
- **Shaped zones** allow precise location of support workers without reducing production

The Matrix IntelliZone® proximity detection system helps train personnel to stay clear of danger zones present around mobile equipment. The system is designed for use on all brands of continuous miners, shuttle cars and other mobile underground equipment or vehicles.

- **Proven Technology in U.S. Coal Mines** – first installed in 2009, more than 90% of all US underground coal mines operating with proximity detection systems use Matrix technology.
- **Highly Reliable** – machine-integrated “Drivers” are compact and robust for maximum uptime and manufactured for harsh operating conditions.
- **Service & Support** – all Matrix IntelliZone systems are backed by Matrix's outstanding field service technicians and distribution network.
- **Data Logging** – IntelliZone is the only MSHA-approved prox system that allows **precise** personnel location and data logging.
- **MSHA, SANS 60079-0/1/11/18 and IECEx certified**

**The
MOST ADVANCED
proximity detection
system operating
worldwide in
underground mines**



Locator

The IntelliZone Locator uses audible and visual alerts to warn personnel of potential danger.

The Locator is compact, lightweight, simple to use and powered by a rechargeable battery.

All IntelliZone Locators for underground coal mines are Intrinsically Safe (IS).

DRIVER

CONTINUOUS MINER / SHUTTLE CAR

DRIVER

SHUTDOWN
ZONE

Immediately disables movement of equipment when locator detected in this zone.

Constant tone warning and flashing red light on driver & locator.

Operation resumes when locator leaves zone.

CM OPERATOR
ZONE

Created by Matrix SharpZone technology when shuttle car is loading.

Allows operator to stand or kneel in a safe position without triggering the Caution Zone warning.

CAUTION
ZONE

Beeping tone warning and flashing yellow light on locator.

Flashing yellow light on driver.

SharpZone™ Technology for Precise Programmable Awareness Zones

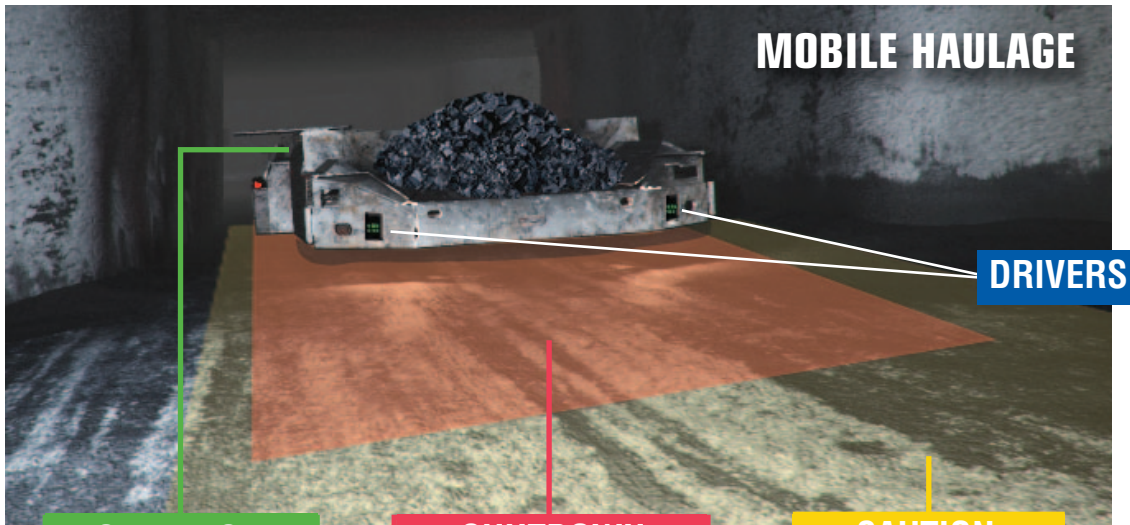
Matrix's leading-edge SharpZone technology creates equipment-specific straight line and angled safety areas for the most effective Caution and Shutdown zones. These zones help protect miners from mobile equipment injuries and minimize nuisance warnings or shutdown. For example:

- Mobile haulage awareness zones vary based on speed and direction of travel. Higher speed means longer forward zones to allow for higher stopping time.
- Mobile haulage awareness zones can “see” through curtains to help avoid worker collisions.
- Zones around CM tail automatically shrink in cutting mode and expand while tramming.
- Customized “green” zones can be generated within the awareness zones to allow operators to stand, kneel or, if appropriate, ride in safe locations without setting off a zone alert.

IntelliZone® PROXIMITY DETECTION



Unlike other prox systems, **Matrix IntelliZone** creates machine specific **straight-line and angled dynamic zones** which automatically change depending on the operational status of the equipment.



Zones Extend as Speed Increases

As shuttle car speed increases, the zones increase in length to accommodate the longer required stopping time.

The zones can “see” through barrier curtains, which helps protect workers.

OPERATOR ZONE

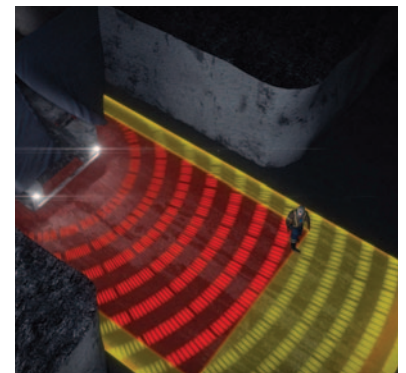
Matrix SharpZone technology creates an in-cab “green” zone so operator does not trigger alarms while driving mobile equipment.

SHUTDOWN ZONE

Auto-stops when worker detected in Shutdown Zone.
Audible warning and flashing Red light on driver & locator.
Operator receives in-cab warning. Operation resumes when worker exits zones.







CAUTION ZONE

Auto-slows speed when worker detected in Caution Zone.
Audible warning and flashing Yellow light on driver & locator.
Operator receives in-cab warning (optional).

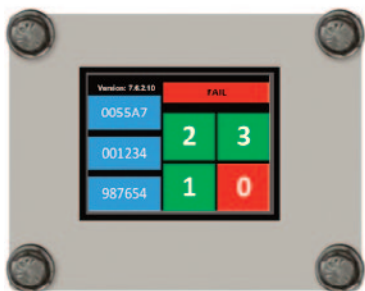




Matrix IntelliZone® Warning System Summary

Worker Location	Locator	Driver	Continuous Miner	Mobile Haulage
Outside Zones	 Flashing Green Light	Green Light 	Normal Operation	Normal Operation
Caution Zone	 Flashing Yellow Light & Beeping Tone	Flashing Yellow Light 	Normal Operation	Speed Auto-Slow
Shutdown Zone	 Flashing Red Light & Fast-Beep Tone	Flashing Red Light 	Auto-Stop	Auto-Stop

Enhanced Status Screen



The Enhanced Status Screen (ESS) provides a quick visual report, showing if your system drivers and locators are working properly. ESS decreases the time required to trouble-shoot a system issue without the use of a laptop or other machine control interface tools.

ESS provides six diagnostic screens, plus directional zone breach information.

The Enhanced Status Screen comes with all new IntelliZone systems, and can be easily added to older systems.



Information and specifications contained in this document are subject to change without notice.

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Joy SMARTZONE Compatible

IntelliZone is Compatible with SMARTZONE

Matrix IntelliZone	Joy SMARTZONE
Continuous miners, shuttle cars and other mobile equipment	All Joy Serviced Products
Matrix Field Support	Joy Field Support

NOTICE

Matrix IntelliZone is intended to help teach mine personnel to safely interact with equipment and stay clear of danger zones. It is not intended to replace safe operating practices. IntelliZone is a useful tool to assist in personnel training.

IntelliZone®

PROXIMITY DETECTION

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