

A full-page background image of a male worker with a beard, wearing a white hard hat with a Miller logo, safety glasses, a red polo shirt, and a high-visibility orange safety vest with reflective stripes. He is holding a black electronic device in his right hand and a smaller component in his left. The background shows power lines and a clear sky.

ZONEGUARD

Safety in your own hands



ELECTRONIC ROADWAY WORKER PROTECTION SYSTEM

MillerIngenuity.com/ZoneGuard

ELECTRONIC SECONDARY PROTECTION

Miller Ingenuity's comprehensive understanding of railway worker protection requirements and practices have contributed to the development of ZoneGuard - an electronic safety overlay system that augments your current worker safety rules.

ZoneGuard is designed to provide secondary protection to lone workers as well as large track crews. Our product can alert the train operator of the presence of a track crew and it will alert every equipped track worker of an approaching train.

Railroad managers constantly focus on keeping track workers safe, trains on schedule, and balancing maintenance activities against available track time. We address these oftentimes competing objectives by deploying a wayside network of intelligent train detection modules. The modules utilize multiple and diverse sensors to provide train/track vehicle detection in the unforgiving railroad operating environment while having minimal impact on railway operations.

Upon a train detection, ZoneGuard calculates the necessary warning time to the track crew, allowing the crew to work as long as possible, and still be safe in the clear within the required clear time prior to the train's arrival.





HOW DOES IT IMPROVE SAFETY?

Helps Prevent Human Error

Integrating the system into existing rail safety procedures will help eliminate human error factors, such as distractions, complacency, inexperience, and miscommunication, that are frequent contributors to close calls and accidents.

Eliminates False Alerts

ZoneGuard includes a patented combination of diverse sensor technologies that work together to ensure track vehicles are detected consistently and accurately. Its proven accuracy helps eliminate the chance of false alerts that can wrongfully establish complacency among work crews.

Mesh Communication Network

ZoneGuard utilizes mesh radio technology to provide reliable, self-healing, and robust communication across all devices in our network. This type of multi-directional communication strengthens network integrity and provides more accurate and reliable alerts to your workers. How is ZoneGuard different than some other legacy systems on the market? These systems use bi-directional radios, allowing for a single point of failure if any one device drops offline. Additionally, there are no wires or clamping to complete the installation.

HOW DOES IT WORK?

ZoneGuard is an incredibly flexible train detection and alerting platform that can be customized to work efficiently in most railroad operating environments. Here are the basic components used in most ZoneGuard deployments:



Train Detection
Module (TDM)



Train Alert
Module (TAM)



Worker
Wearable
Devices



Optional
Onboard Unit
(Fixed System)



Portable
Battery Box



Portable
Carrying Case

Train Detection Module

The train detection module (TDM) uses integrated internal sensors to detect on-track vehicles as they approach a work zone.

Train Alert Module

The train alert module (TAM) will work together with the TDMs to act as network repeaters and alerters.

Worker Wearable Devices

The RWIC (grey), watchman (yellow), and crew member (blue) will receive alerts on their wearable devices when trains enter established work zones.

Onboard Device

The onboard unit is an optional device that works in conjunction with our fixed system and warns train operators when they are approaching active work zones.

Portable Carrying Case

Your portable kit will be contained in our rugged, easy to transport carrying case. Between each use, charge your components right in the case.

Portable Battery Box

The portable battery box provides 2x additional battery life to a portable TAM (PTAM) or portable TDM (PTDM).

Customers can swap out portable battery boxes in the field to provide continuous runtime of the system.

The battery box cable is 15ft long and can fit under the rails. This will allow workers to easily replace a battery without needing to foul the track.

* Featured applications dependent on type of system purchased/installed.

ZONEGUARD PRODUCT LINE

ZONEGUARD FIXED SYSTEM

The ZoneGuard fixed system is comprised of permanently installed TDMs that make up a fixed communication and train tracking network. Each TDM is configured based on the location it is installed, neighboring ZoneGuard devices, and customer specific track profiles. The ZoneGuard fixed system provides 24/7 train tracking capability and is online ready to be used by any number of roadway workers, at any time, with no configuration or setup required. Roadway workers simply need to enter within radio range of the outfitted track alignment, connect to the ZoneGuard TDM network, and will begin receiving alerts for all approaching on-track vehicles that are within a specific time of arrival to roadway workers, based on customer specific On-Track Protection rules.

While not requiring on-board installation to operate, the system's on-board component can provide real-time on track vehicle location information to provide precise warnings to train operators and workers when approaching an active work crew, and can allow for PTC integration through future updates.



ZONEGUARD YARD PROTECTION SYSTEM

The ZoneGuard yard protection system uses the setup from the fixed system to warn workers within a rail yard of any incoming track vehicles or cars being shoved into the facility.

Train detectors determine if track vehicles are entering or exiting the facility and workers receive alerts from their wearable devices and the train alert modules mounted throughout the yard. This technology is unique in its ability to detect directional motion while also preventing detections of non-track vehicle movements such as animals, pedestrians, weather events, cars, and detections in multi-track environments.



ZONEGUARD PRODUCT LINE

ZONEGUARD PORTABLE KIT

The ZoneGuard portable eRWP kit is used as a standalone system and does not rely on any outside on-board or signaling systems in order to operate. Portable TDMs define the outermost limits of the detection and alerting zone and are temporarily placed at the limits of a work zone, typically defined by a customer's sight-distance rules for watchman, or are placed alongside approach and stop boards. TDMs placed at the outermost limits of the temporary work zone will detect approaching on-track vehicles as they reach TDM location(s), and will generate alerts to all worker wearables and TAMs that are in use. The portable modules are lightweight and easy to transport, weighing under 5lbs, and measuring about a foot in length. The equipment for the portable kit will be contained in a rugged, easy to transport carrying case. Between each use, charge your components right inside the case.





ZONEGUARD APPLICATIONS

Our patented sensor technologies deliver precise and reliable detection across a range of safety applications.

From track worker protection to collision avoidance and pedestrian crossings, ZoneGuard can be configured to meet your unique needs.

Whatever the challenge, our technology provides a comprehensive, dependable safety solution to help enhance your railroad operations.



For more information on ZoneGuard
or to schedule a demonstration, please contact:



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