

Dragging Equipment Detector

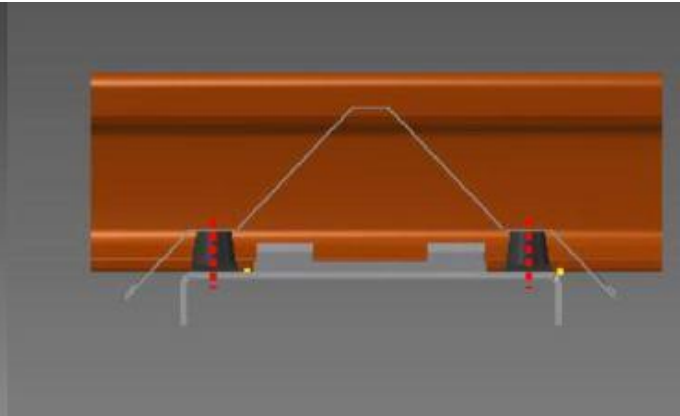
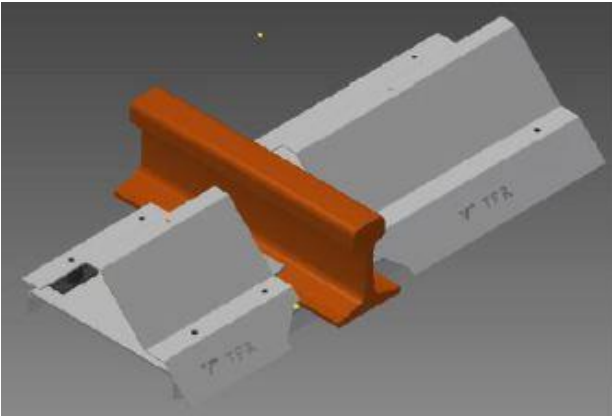


Dragging Equipment Detector (DED) Technology is deployed to actively detect and alert users to objects dragging from passing trains. A variety of objects are typically secured at or near the underside of a train and may become loose or partially detached from the train in some situations. For example, the vibration of the train travelling along the track may cause an air hose, a pipe or other object to drag beneath the train. This dragging equipment can damage the rail infrastructure and present a hazard to infrastructure equipment, e.g. points, sleepers, crossings and in extreme cases, result in derailment. To make matters worse, train drivers would likely be unaware that the train is causing extensive damage as it moves along.

STATIONARY IMPACT PLATES VS. TRADITIONAL PADDLE SET

The impact-style DED was designed to alleviate the problems associated with the traditional paddle-style system. The stationary impact plates, situated between and outboard of the rail legs, are fitted with sensors that detect impact energy. An alarm is generated if the energy is sufficiently large and the analogue nature of the sensors allows for configurable detection levels. The traditional paddle set, however, provides only an on or off signal, with no configurable detection level.

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INTEGRATED WHEEL SENSOR INTERFACE TO PINPOINT IMPACT

The DED system makes use of vertical load receptors, which behave as wheel sensors. The main function of these wheel sensors is for indexing impacts to axles. This means that impacts are matched to the nearest axle within the vehicle and train as a whole, greatly simplifying the process of locating the offending object.

The sensors also assist in vehicle footprint recognition, allowing positive identification of locomotives and wagons. This ensures accurate consist identification.

Finally, the sensors also provide stoppage and reversal support, ensuring data integrity should these events occur.

CONFIGURABLE ALERT LEVELS

The analogue nature of the sensors allows for configurable detection levels. Three levels are provided for, allowing differentiation of impacts by severity and required action.

MICROPROCESSOR-BASED SYSTEM

Based entirely on microprocessors, the DED system is energy-efficient and reliable, while providing excellent performance. All components are industrial and solid-state, with no moving or rotating parts. Dedicated firmware removes the need for an Operating System, increasing stability while reducing costs and maintenance requirements. The result is a simpler, more reliable system, which is ideal for harsh operating environments.

The hardware is compact, resulting in a much smaller footprint than traditional systems. All T-series products and variants are housed in a small, vandal-proof 500x400 mm trackside enclosure. The enclosure is easily installed by a small team and does not require a large foundation to be laid. The low-power requirement of the system makes solar powering an option, with a typical current draw of 500mA at 12V. This makes the DED system ideal for remote locations and provides great flexibility on where the equipment can be installed.



INSTALLATION REQUIREMENTS

- Installation requires approximately 8 hours for a double-line site.
- Straight, level section of track required.
- Power required (220V AC / 24V DC / 12V DC).
- No cutting of the track.
- No sleeper modification.