A guide to picking the right pedestrian safety system for your operation

Safety is a paramount requirement for any business operating heavy mobile equipment in proximity to pedestrian workers. If total separation is not possible, adding an active safety technology can help to reduce the risk of a collision. Good technology can add a vital extra layer of safety if things go wrong. But getting the wrong technology can cause frustration and a lot of wasted time and money.

Below are 9 important things to consider when looking for a pedestrian safety technology for your fleet.

1. Passive or active?

Passive safety measures like high vis vests, safe operating procedures, blue-lights, reversing beepers, and reversing cameras, all play an important role in operational safety and prevent many accidents. However, because human error is inevitable, accidents will continue to occur despite these measures. An active warning system provides a second layer of defence when passive systems fail. Actively warning the driver if they don't notice an inattentive pedestrian behind a reversing machine can make a lifesaving difference.

From a health and safety liability perspective, wherever a risk of collision between mobile plant and pedestrian workers exists, passive measures alone are not considered to be sufficient risk mitigation. Businesses must take all reasonable steps to avoid accidents, and these days, this means using an active detection system.

2. What to detect?

Some radar detection systems will alarm on anything in the detection zone, including racking, walls, pallets, people, boxes, and vehicles. In some environments, this can be useful and effective, but in many situations, excessive detections lead to operators ignoring the warning due to alert fatigue.

Selective detection systems are designed to only alarm when a particular item of interest is detected (for example people, or tagged objects) and ignore everything else. The benefit of a selective detection system is that detection alerts will be far less frequent, highly relevant, and therefore more likely to be noticed and acted upon.
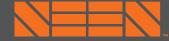
3. Tag or no tag?

Most selective detection systems require an electronic tag to be worn to enable detection. The benefit of a tag is that it generally enables reliable detection. While electronic tags are appropriate in certain environments, they have considerable downsides, which include:

- Everyone on site must be issued a tag and trained in its use. This can be difficult to manage, especially on sites with visitors and sub-contractors
- The electronic tags are often expensive
- Battery-powered tags must be regularly charged and checked using additional test hardware at additional cost
- Integration with your IT system is often needed, complicating the deployment process
- It is often difficult to control the detection zone, resulting in over-reporting

Systems that don't require a tag are simpler, but heavily rely on the ability of the sensor to accurately and reliably detect a human form in all conditions. This is technically difficult, prone to error, and costly to purchase and install due to the complex nature of the hardware and setup.

Change is hard, so whatever system you choose it should complement your existing safety measures and not require your workers to change their behaviour to accommodate the new technology.

Our sensors detect people even when the driver doesn't

SEEN IRIS 860 sensor

Active detection

Selective detection

No tag needed

4. Detection area

Over-detection is the quickest way to render any pedestrian detection system useless. Even the most reliable system will fail if it annoys the operator with constant irrelevant alarms. It is vital to carefully consider what detection area will provide just enough detection to achieve a meaningful safety benefit, but no more.

If pedestrians need to routinely work near the mobile equipment, 360º proximity detection will probably result in an excessive number of alerts which will undermine the warning in critical situations. In this case, targeted detection will give the operator useful information that assists them rather than annoying them.

The ability to easily adjust the detection distance and shape is also important to ensure the detection zone is optimised for the machine and the application.

5. Operational impact

Machine downtime costs serious money. The quicker and simpler the installation the quicker the machine is back in operation and making money. The same goes for reliability. If the technology goes down and needs replacing or servicing, it all costs money. A simple plug-and-play system with no service or setup requirements will reduce the overall cost of ownership. A simple installation also means the sensors can easily be moved from machine to machine when required.

Systems that involve multiple components, IT integration, transponders, testing and calibration will require considerable staff training and oversight to ensure compliance. Further time and cost to consider when evaluating the total cost of owning the technology.

6. Tag fixed objects for detection

At SEEN we prefer that detection be primarily reserved for people. However, we also recognise that the risk of collision with other machines or static objects is a major problem for many customers. For this reason, the ability to quickly and inexpensively tag any object for detection may be important to you as well.

7. Cost

The cost to purchase, install, and maintain a system will directly affect the number of sensors your organisation can afford to deploy. No matter how good the system is, if it's too expensive to put on all your machines, the full safety effect will never be realised and lives will be put at risk. As well as upfront cost, beware of ongoing service and support costs.

8. Reporting / data / interoperability

Sensors are great at detection and warning, but when it comes to accident prediction and prevention, data is king. When evaluating a system, check that it has the capability to output data that can be used to provide meaningful and user-friendly insight into the near misses happening on your site.

9. Reliability

Work sites can be challenging environments for the reliable operation of high tech sensors. Sites are often dusty, dirty, prone to RF interference, have patchy internet connectivity, day and night operation, indoors, outdoors, rain or shine.

In physically demanding environments, simple technology will generally work better and be more reliable than more complex systems. Check how many different hardware components the system requires, what regular maintenance is required, and if you need specialist support to make any changes. If the system is complex and requires constant support to work reliably then costs and frustration can quickly mount.

Precise detection zone ✓

Simple to install and use ✓

Tag any object with reflective tape ✓

Affordable No ongoing cost ✓

Data port on every sensor ✓

Reliable detection in all conditions ✓

For more information on IRIS 860 sensors, please contact Seen Safety:

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