



## ***Rear Ranging Systems for Straight Trucks***

Altra Technologies delivers the latest in collision warning technology. Our systems are designed to increase safety, decrease operating costs, and generate additional profit, utilizing the industry's first modular, low cost, expandable design.

Altra has developed a unique sensor technology that combines maximum range information with superb accuracy. This combination provides for precision backup assistance and early warning of potential hazards. The precision backup system actually registers the distance to an object behind the vehicle so that drivers can safely backup and avoid costly rear end damage. This reduces costly accidents and improves driver productivity.

Altra's Applications Engineering team will work with you to customize a specific solution to your collision warning requirements. Call us today to discuss your individual needs.

# ***Collision Warning Systems***



## Features

- Ultrasonic technology delivers precise, consistent, and reliable detection in all weather conditions
- System minimizes false alarms and operator distractions
- Intelligent "smart sensors" keeps cost down
- Able to detect objects within 20 feet
- Field upgradable: allows you to expand coverage to include blind spots on the sides of the trucks
- Other upgrades available include fire detection and open door sensors
- Altra Collision Warning Systems are fully compliant with SAE J1455

## Components

Altra's systems are built using an array of modular components. This approach gives each customer the flexibility to tailor a system that meets their specific needs. The following are the pieces needed to build a standard backup assistance solution for straight trucks.



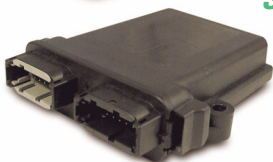
### Driver Vehicle Interface (DVI)

The DVI is mounted on or in the dash. It provides the driver with visual and audible warnings of most hazardous conditions in areas monitored by Altra sensors. It also provides range information for drivers' use while backing up. It is capable of providing alarms on other types of conditions for special customer needs (e.g. fire alarm, door open). The DVI also provides automatic adjustment of light levels on its displays to compensate for varying lighting conditions in the cab and a volume adjustment for the audible alarm.



### AltraSensor

AltraSensors are mounted on the rear of the trailer. Working in conjunction with the SSP, these sensors employ a proprietary technology to achieve superior detection capability. Achieving detection of objects up to 20 feet behind the vehicle, Altra's system provides effective detection and early warning of potential hazards. The sensors are built to withstand shock, vibration and a wide range of temperatures and each sensor is designed to perform over a broad range of environmental conditions.



### Sensor Signal Processor

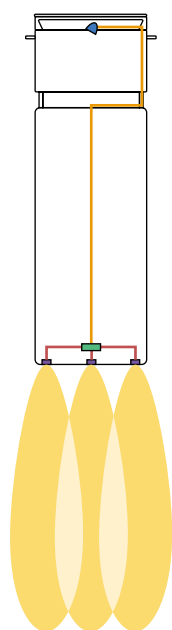
The Signal Sensor Processor (SSP) mounts in the vicinity of the AltraSensors located at the rear of the trailer. The SSP receives electronic signals from the AltraSensors, processes the electronic signals (patent pending) to determine the range to objects in vicinity of the AltraSensor, and transfers pertinent data to the DVI.

All Altra Technologies Collision Warning System Components are rigorously tested and comply with SAE J1455.

## Architecture

Altra's system consists of proprietary hardware and software configured with a flexible system architecture to meet a broad variety of customer needs. This system can be adapted to many types of vehicles to detect objects in the blind spots all around the vehicle.

Sensor Coverage Area



### Driver Vehicle Interface - Front Display

**Rear Object Detection Indication**  
(Red Lights)

**Side Object Detection Indication**  
(Blue Lights) Used with optional SODS

**System Active Indication**  
(Blue Light)

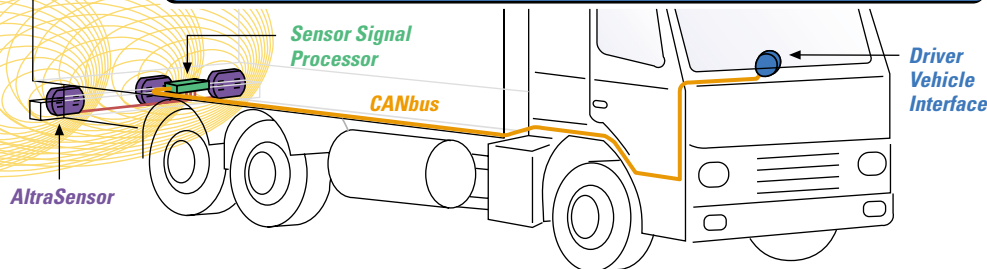
**Digital Distance-to-Object Display**

**Volume Control**  
(Push Button)

**Brightness Control**  
(Push Button)



Speaker



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Portions covered by patent #6,268,803 B1  
and other patents pending.