



School Bus Collision Warning Systems

Detects Obstacles, Vehicles and Persons

Altra Technologies, Inc. SASS™ (Stand Alone Smart Sensor) systems deliver to the school bus industry the latest in collision warning technology. This system is designed to increase safety and provide flexibility to address a range of needs at an economical price.

Altra's Rear Object Detection System provides an effective tool to automatically detect the presence of objects, vehicles, or persons to the rear of the bus. This system consists of proprietary hardware and software with state-of-the-art signal processing technology and software. Information is communicated to the driver through a dash-mounted driver-vehicle interface that provides visual and audible feedback including the range to the detected object. This system also has the flexibility to incorporate additional sensors to the side of the vehicle and along the front bumper of the vehicle to further enhance safety when loading and unloading children. An optional video system is also available to provide a view of the area once a hazard is detected.

Altra's system is easily installed and easy-to-use with minimal training.

Altra's Application Engineering team will work with you to customize a specific solution that will meet your specific needs.

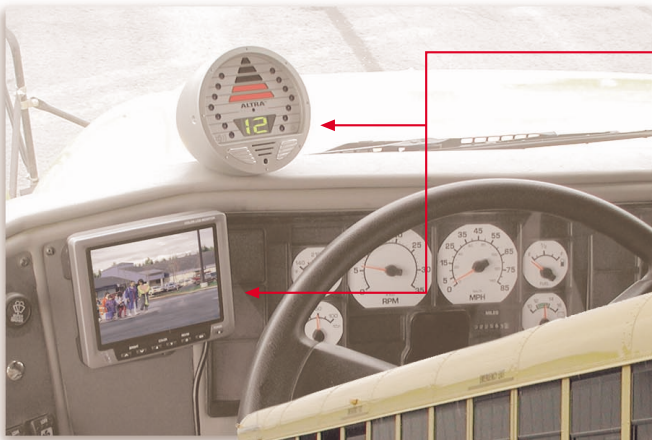
Collision Warning Systems



Features

- Automatic detection of vehicles and persons behind the bus
- Audible and visual warning
- Visual display of range to persons or objects behind the bus
- Video camera and monitor to provide view of the area behind the bus
- Option: Night vision video camera for low visibility conditions
- Option: Side object detection (monitor the area of the door and/or wheel wells)
- Intuitive operation requires minimal training
- Field upgradeable: Allows expansion of system features in the future
- Ease of installation

System Overview



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

Ultrasonic Sensors

Programmable ultrasonic sensors give complete coverage to the rear of the bus. The sensor's housing is manufactured to withstand shock and vibration and the unit is weather-sealed for temperature and moisture protection.



DVI and Video Monitor

The Driver Vehicle Interface (DVI) automatically alerts the driver of persons or obstacles detected behind the bus. The video monitor provides a view of the area behind the bus. An optional night vision camera provides for operation in low visibility conditions.



Camera

The video camera gives the driver the ability to see activity directly behind the vehicle via the 7" viewing monitor that is mounted on or in the vehicle's dash. Its wide angle lens provides maximum viewing angle. The camera is housed in a durable weatherproof case and an infrared model is available for night time use.

Detection Zone

The area in red depicts the ultrasonic detection zone. The blue area shows the video camera field of view.



Specifications

Operating Range

Power Requirements

Power: 6W

Voltage: 9 to 16VDC

Temperature Range

-40° to +185°F (-40° - +85°C)

Driver Vehicle Interface

Weight 14 oz. (.44 kg)

Height 4.25 in. (10.8 cm)

Width 4.25 in. (10.8 cm)

Depth 4.25 in. (10.8 cm)

Ultrasonic Sensor

Weight 1.4 lb. (0.52 kg)

Height 3.25 in. (8.26 cm)

Width 4.25 in. (10.8 cm)

Depth 2.25 in. (5.7 cm)



Altra Technologies, Inc.

605 Lewis Avenue North

Watertown, Minnesota 55388 USA

phone (952) 955-2614 • fax (952) 955-2620

www.altratech.com

Part #ATMSBBU-7.02
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Portions covered by patent #6,268,803 B1
and other patents pending.