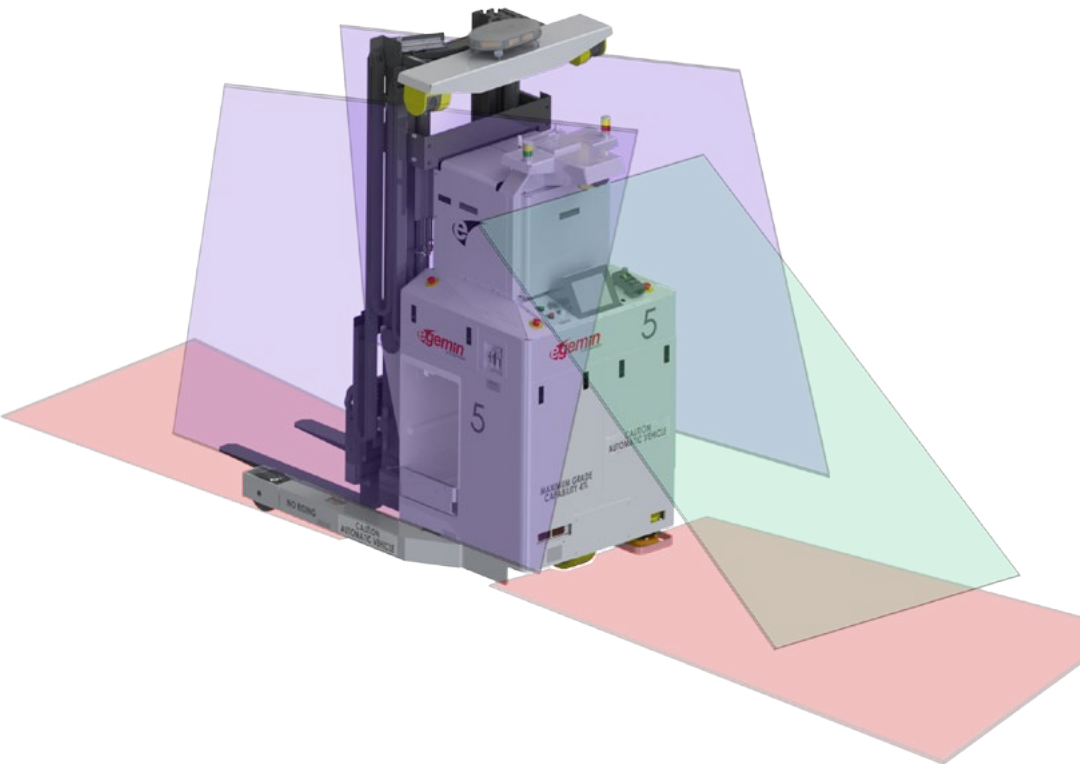


AGV Safety

Egemin Guided Vehicle Systems incorporate the most comprehensive and advanced **safety** technology and componentry. We believe a comprehensive **safety** package must also include a combination of in-depth personnel training and environmental awareness in addition to vehicle features. **Safety** recommendations are developed for each facility that can include designated lane marking, visible and audible cues, signage, and lighting. We train all personnel, not just the key operators, to raise awareness and understand what to expect and how to interact with the automated system. The best automated systems incorporate a **“safety first”** approach with all these elements to ensure years of **safe** and **efficient** operations.



Standard Safety Features

- Collision Avoidance System
- Accessible Emergency Stop Buttons
- Visual Warning / Alarm Lights
- Audible Warning / Alarm Signal
- Redundant and Safety-rated Features

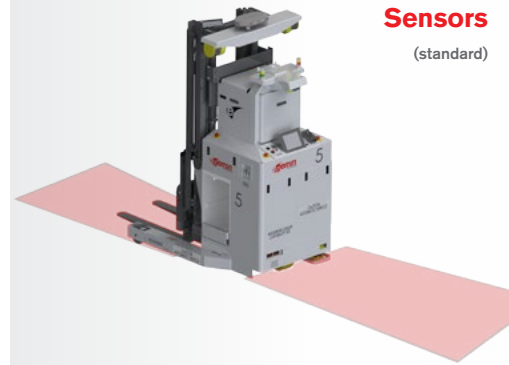
Upgrade Safety Features

- Upper Front Laser Sensor
- Side Curtain Laser Sensors
- Safety-rated Upper Sensor
- Extra-loud Audible Warnings & Alarms
- Contact Obstacle Detection Sensors
- Self-diagnosing Componentry

SAFETY LEAFLET

Front/Rear Sensors

(standard)



Side Curtain Sensors

(optional)

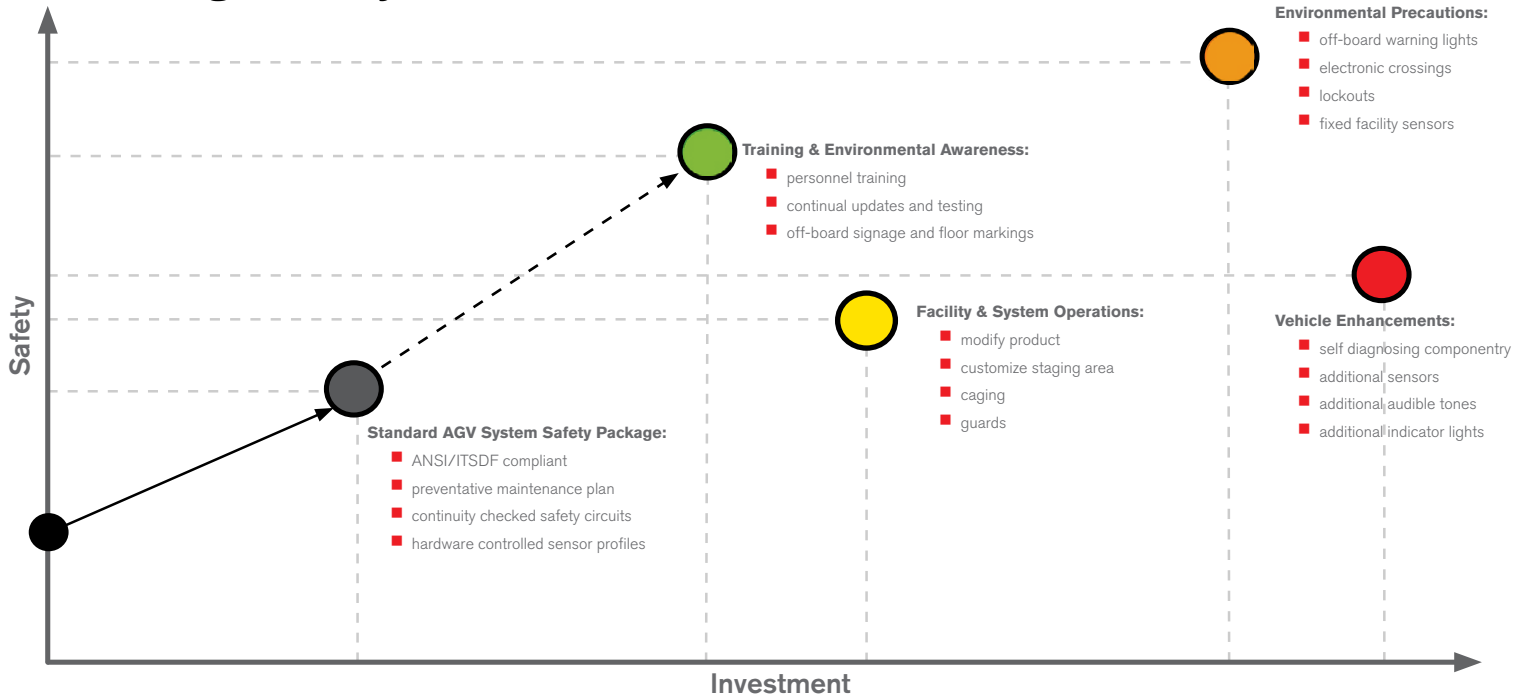


Upper Front Sensor

(optional)

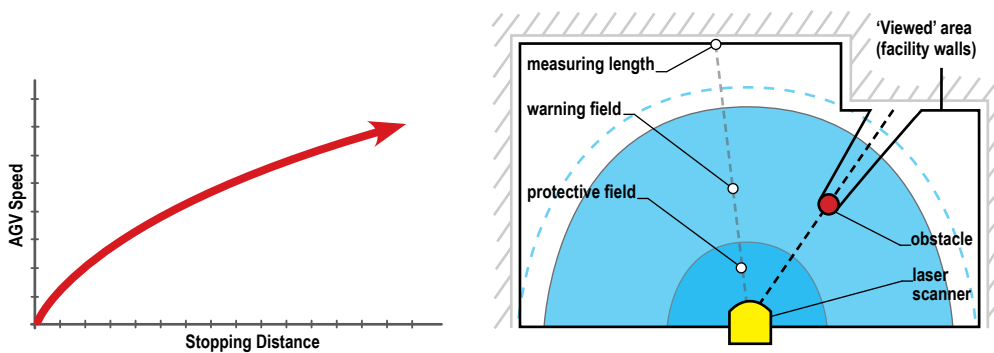


Balancing Safety & Investment



Speed vs. Stopping Distance

Egemin's dynamic **collision avoidance system** utilizes **safety** rated laser scanners. When an object enters the warning field, the vehicle adjusts its speed accordingly. If the obstacle is still detected within the protective field, the vehicle will apply its brakes and come to a complete stop before contact is made. The vehicle will resume automatic operation approximately three seconds after the obstacle is removed from the protective field. The scanner range, profiles, and vehicle stopping distance determines the safest AGV speed.



SICK S3000
Safety Laser Scanner



SICK S300
Safety Laser Scanner

Environmental Factors

Safety is the most important factor at Egemin. Our vehicles meet or exceed ANSI guidelines. AGV Systems can improve facility **safety** when compared to manual operations, as seen in the chart below:

Factor	Lift Truck	AGV
Speed	7.5 mi/hr	3.5 mi/hr
Safety Equipment	Driver training	Safety towards environment
Travel Path	Random paths	Defined repetitive path
Visual Travel Indicators (Blinkers, Beacons, etc.)	Varying	Standard
Audible Travel Indicators (FWD/REV Tones, Alarms)	Varying	Standard
Restricted Areas	Driver training	Known



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