



ELECTRONIC STABILITY CONTROL – HYDRAULIC BRAKES

AN INTELLIGENT INVESTMENT IN STABILITY FOR SCHOOL BUSES

An electronic stability control system may help mitigate rollovers and loss of control on a wide variety of road conditions. Full stability systems like this one deliver more performance than roll-only systems, thanks to additional sensors and braking capability.

NEEDS FOR SCHOOL BUS STABILITY:

- ▶ Detect potential instability situations quickly
- ▶ Intervene quickly
- ▶ Apply braking where needed
- ▶ Perform on wet-, snow-, and ice-covered surfaces

WHAT IS ELECTRONIC STABILITY CONTROL?

- ▶ First widely used ABS-based stability system capable of recognizing and assisting with both rollover and vehicle under- and over-steer driving situations
- ▶ Provides a higher level of stability on both dry and wet surfaces compared to systems that focus only on rollover mitigation

HOW DOES ESC WORK?

- ▶ An ESC system quickly and automatically intervenes to assist the driver if the vehicle is reaching a critical stability threshold
- ▶ The system can selectively apply vehicle brakes, as well as de-throttle the engine

FEATURES OF ELECTRONIC STABILITY CONTROL

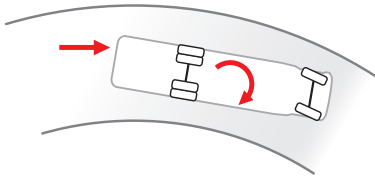
- ▶ Helps mitigate vehicle slides, skids, and loss of control through advanced monitoring of a variety of vehicle parameters and automatic and selective application of vehicle brakes
- ▶ Helps mitigate rollovers through advanced sensing and automatic application of vehicle brakes

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THE IMPORTANCE OF ELECTRONIC STABILITY CONTROL FOR SCHOOL BUSES

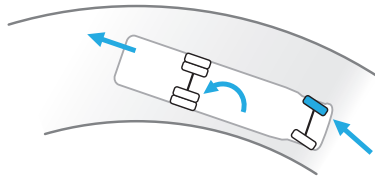
DRIVING SCENARIO:

The vehicle's speed around a curve has exceeded the ability of the tires to hold the vehicle orientation, causing the vehicle to slide and over-steer.



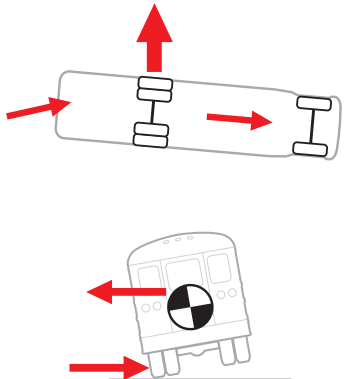
SYSTEM RESPONSE:

An ESC system helps to correct the vehicle orientation by reducing speed and, if required, the system quickly applies braking pressure to the appropriate wheels.



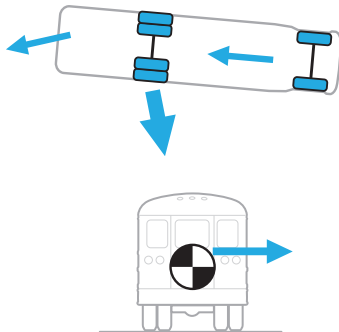
DRIVING SCENARIO:

A vehicle enters a curve too fast on high friction pavement. The wheels and the pavement create a "hinge" effect allowing the forces at the center of gravity to push the vehicle over.



SYSTEM RESPONSE:

An ESC system applies pressure to all brakes and reduces engine throttle to quickly reduce vehicle speed and help reduce the chance of a rollover.



The table below identifies the key features and components of an electronic stability control system.

	FEATURE	WHAT IT DOES	WHY IT MATTERS	IC Bus ESC
Sensor Technology	Wheel Speed Sensors	Monitors the wheel rotation at individual wheels	Allows the system to determine vehicle speed and monitor wheel lock-up to optimize braking	✓
	Lateral Acceleration Sensor	Senses the side or lateral forces acting on the vehicle	Side or lateral forces are used to detect a roll situation	✓
	Steering Angle Sensor	Senses the driver's steering and direction	An early indicator of a potential critical maneuver. Helps the system to respond faster and more accurately	✓
	Brake Pressure Sensors	Measures the driver's braking demand	Allows the system to accurately supplement the driver throughout the maneuver	✓
	Yaw Rate Sensor	Senses the rotation of the vehicle	Allows the system to monitor the true orientation of the vehicle and compare it to the driver's intention	✓
Performance Enhancements	Multi-level Sensing	Cross checks multiple system sensors	Improves the reaction time and accuracy of the intervention	✓
	Tuning	Different vehicles have different stability characteristics. Tuning adapts the stability system to account for these differences	Improves the ability of the stability system to match the intervention of the situation	✓
	All Axle Braking	The ability to apply brakes at all axles	Provides the best opportunity to reduce vehicle speed in the shortest time	✓
	Individual Corner Braking	The ability to apply individual brakes	Provides the capability to control under- and over-steer situations	✓

For more information contact your IC Bus dealer or visit www.ICBus.com.



www.ICBus.com

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