

DID YOU KNOW THAT WABCO

... has sold **6 million ABS**
and **2 million EBS** systems?

... has field experience of over
90,000 million km with **EBS** in buses?

... has more than **30 years**
experience with
Climate Control?

... has produced more than
300,000 Door Control
systems for buses?

... has sold more than **3 million ECAS** systems?

... enables **1 billion liters** of fuel savings every year
with **Transmission Automation**?

... was one of the **industry's first**
system supplier with **ACC** in series
production since **2004**?

... has more than
40 years experience with
clutch control design?

... has **190,000 million km** field experience **with ESC**?

... has more than **550,000 million km**
field experience with **Vehicle Electronic**
Architecture (VEA)?

... is one of the leading manufacturers of
Tire Pressure Monitoring Systems (IVTM)?



WABCO (NYSE: WBC) is a leading global supplier of technologies and control systems for the safety and efficiency of commercial vehicles. For over 140 years, WABCO has pioneered breakthrough electronic, mechanical and mechatronic technologies for braking, stability and transmission automation systems supplied to the world's leading commercial truck, trailer and bus manufacturers. With sales of \$2.2 billion in 2010, WABCO is headquartered in Brussels, Belgium.

WABCO

OUR COMMITMENT TO SUPPORT BUS MANUFACTURERS AND OPERATORS



PASSION FOR TECHNOLOGY

EXECUTION

THE WORLD

INNOVATION

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WABCO'S PASSION FOR SAFETY AND EFFICIENCY IN BUSES

Brake and Stability Control

ABS or EBS

- Modular pneumatic and electronic braking systems
- ESC and several other functions available, e.g. Traction Control, Hill-Start-Aid, Tire Pressure Indicator etc.

EBS Standard System

- Cost-optimized solution covering several functions
- Easy customization by programming
- Future support of hybrid systems

Electronic Stability Control (ESC) and Steering Angle Sensor (SAS)

- Helps support the driver in critical driving conditions
- Aims to improve direction stability, especially under dynamic maneuvers
- Aims to increase protection against roll-over, skidding and spinning

Important Dates

- European Directive on ESC for coaches and intercity buses:
- Type approval in 2011
 - New registration in 2013

Door Control

- Control of pneumatically and electrically driven doors
- On-board diagnosis
- Fits the majority of bus types and different door manufacturers
- Easy calibration without tools

Climate Control

- Automatic temperature adjustment via one control unit and up to 8 sub-stations
- High modularity and wide parameter setting possibilities
- Standard WABCO diagnostic for all systems

Advanced Driver Assistance Systems

Lane Departure Warning Systems (LDWS)

- Warning at unintentional lane departure (visual, acoustic, haptic)
- Usage on freeways and similar roads

Adaptive Cruise Control

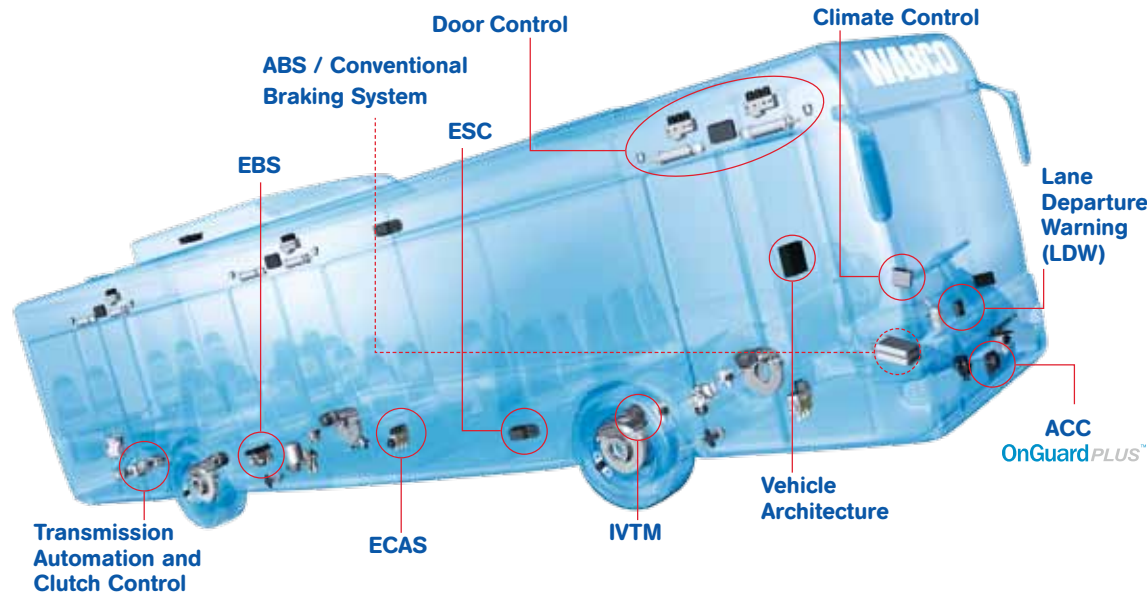
- Controls safe and stable distance to preceding vehicle
- Supports reduction of fuel consumption

OnGuard^{PLUS}™ (from 2013)

- Advanced emergency braking system (AEBS) for prevention or mitigation of rear-end accident impact with vehicle ahead
- Includes ACC function
 - Expected to fulfill EU AEBS legislation
 - Based on single-radar sensor
 - Ready for Stop & Go functionality without added sensors

Important Dates

- European Directive on AEBS and LDWS:
- Type approval from November 2013
 - New registration from November 2015



Driveline Controls

Transmission Automation

- Shifts gears according to driving situation and driver demand
- Supports economic and safer driving

Clutch Control

- Clutch control system for manual and automated manual transmissions
- Safer and better gear-shift operation
- Improved gear-shift operation to aid safety
- Reduced pedal force

Suspension Control

ECAS

- Kneeling
- Automatic Driving Level Adjustment
- Traction Help and other functions
- ESAC optionally available

Chassis Levelling Valves

- Mechanically controlled air suspension valves for added driver comfort

Tire Pressure Monitoring

IVTM and TPMS

- Measurement of absolute tire pressure through external wheel modules
- Analysis of tire pressure profile
- Wireless transmission of pressure information and warning to display
- External wheel modules fit most types of rims

Vehicle Electronic Architecture

MUX / CVC / CVM to control

- Lights, sensors, external loads
- Chassis (brakes, suspension)
- Powertrain (retarder, engine, gear-box)

Standard Bus System

- Fully OEM programmed system for control of electrical loads and sub-systems via CAN
- General sensor and switch signal processing

To discover more, visit: www.wabco-auto.com