



SMARTBOARD – THE NEW MULTIFUNCTIONAL MODULE THAT BELONGS ON EVERY TRAILER

SmartBoard can be added to both WABCO Trailer EBS D or E modulators to provide easy-to-access trailer information and operating data. This multifunctional module provides an overview of the status of the Trailer EBS system and all other systems or components connected to it. Simple icons make the handling user friendly: mileage counter, axle load, wear indicator, tire pressure and system messages can be selected and displayed in fourteen languages. In addition, SmartBoard can be used as the remote control for the integrated Electronic Controlled Air Suspension (ECAS), to control the traction and the manoeuvring help. Further it is possible to start the road finisher brake and to adjust the needed brake pressure.

It can also activate both the torque and the brake release function and show the warning of tip over of the trailer. With the SmartBoard it is also possible to calibrate the axle load output for a better precision.

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WABCO Vehicle Control Systems is one of the world's leading providers of electronic braking, stability, suspension and transmission automation systems for heavy duty commercial vehicles. Customers include the world's leading commercial truck, trailer, and bus manufacturers. Founded in the U.S. in 1869 as Westinghouse Air Brake Company, WABCO was acquired by American Standard in 1968 and spun off in 2007. Headquartered in Brussels, Belgium, WABCO employs more than 7,700 people in 31 countries worldwide. In 2007, WABCO's total sales were \$2.4 billion. WABCO is a publicly traded company and is listed on the New York Stock Exchange with the stock symbol WBC.

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WABCO



- Technical **OPTIMIZATION** provides best possible **ASSEMBLY** and **PROCESS** reliability
- **CUSTOMIZED**, practice-oriented variations
- **INTEGRATED** electronic air suspension reduces operating costs

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WABCO

Simple installation and increased efficiency enhance safety and savings

Enhanced features that save you time and money



As one of the leading global manufacturers of electronic braking systems for trailers, WABCO has sold over 700 000 Trailer EBS systems worldwide. Building on the new standards already set by the innovative Trailer EBS D system, the Trailer EBS E Generation now offers trailer manufacturers a streamlined, optimized solution that reduces installation time and delivers fleet operators the benefits of more efficient operations and less maintenance.

In the third quarter 2008, the E1 update will be integrated in all Trailer EBS E series devices. This update includes new functions of the ECAS, the lift axle control and the Generic Input/Output (GIO). Also the SmartBoard has been improved and further adjustments in connection with the new functions of the Trailer EBS E1 have been implemented.

- **Enhanced positioning of pneumatic and electrical connections**
Mainly running parallel to the trailer chassis cross member, these connections facilitate a tidy, well-structured installation.

- **New cable harness system**
To withstand the harsh demands of daily trailer operation, a new sealing and locking concept adds to the quality and robustness of the new modular cable concept, the need for Y-cables is eliminated. Each trailer function is assigned to a separate plug on the Electronic Control Unit (ECU), simplifying installation. And user-defined preferred functions – such as the integrated Electronically Controlled Air Suspension, lift axle, IVTM and telematics – can be added by simple connection.

- **More Generic Input/Output functions (GIO)**
Functionality can be customized to meet individual customer needs – such as various lift axle control configurations or road finisher brakes.

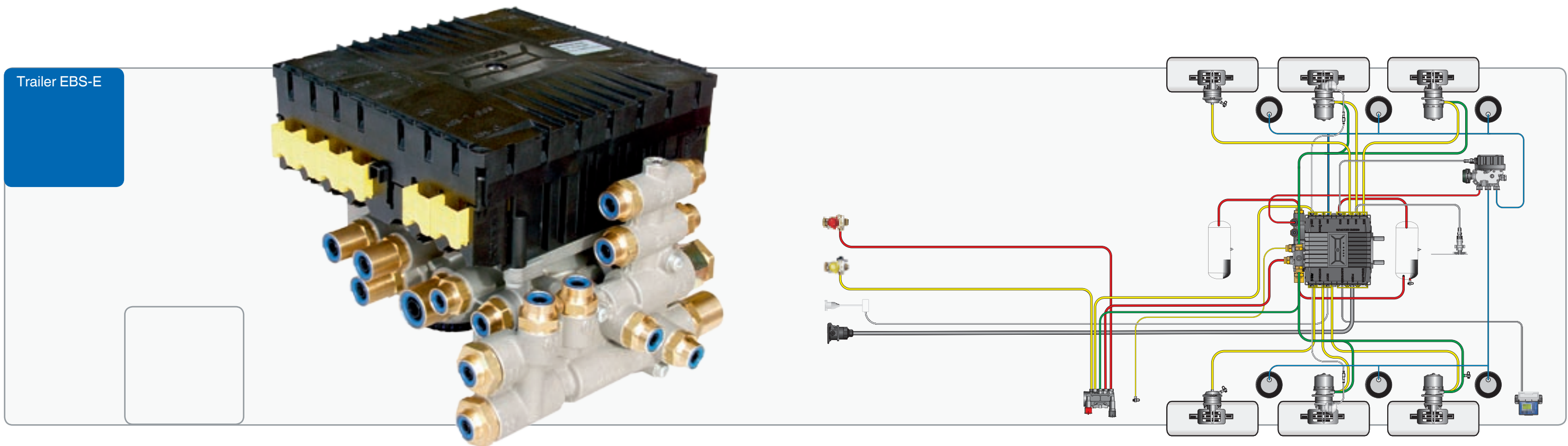
- **Advanced Operating Data Recorder (ODR)**
The extended functionality of the advanced Operating Data Recorder (ODR) provides extra information about vehicle handling and status of the trailer. Additional information for events such as:

- warning lamp activation
 - brake lining wear
 - under-run from tire pressure
 - end-user defined events
- help achieve enhanced trailer operations. Further data are described in new histograms. The quantity of data that can be stored per trip has been significantly increased, along with the number of trips that can be stored, allowing for longer monitoring periods and increasing vehicle transparency. In conjunction with SmartBoard all data is recorded together with the exact date and time.

The ODR Tracker – an independent diagnostic program to check the individual vehicle – allows vehicle analysis and evaluation without the need for Internet access.

Integration that gives you the advantage

New features that save you components and money



INTEGRATED FITTINGS

Optionally, the Trailer EBS E1 modulator can be supplied with integrated fittings, significantly simplifying the installation process since pneumatic lines only need to be pushed in.

INTEGRATED ELECTRONIC CONTROLLED AIR SUSPENSION (ECAS) AND LIFT AXLE CONTROL

The ECAS ECU, integrated within the Trailer EBS Premium version, offers big advantages during both installation and operation:

- **Installation:** There is no need for an additional ECU for the ECAS. Preset datasets make connection and parameter setting simple. By using only one diagnostic program you save time during installation and the end-of-line test.
- **Operation:** Lifting and lowering functions, automatic adjustment of ride height, memory levels 1+2, and lifting/lowering of the lift axle can be activated using SmartBoard. When a truck and trailer are always operated in one combination and the truck is equipped with WABCO ECAS CAN2, both truck and trailer can be controlled using the remote control unit in the truck.
- **Loading and Manoeuvring:** When loading the ECAS automatically adjusts to the correct level for the forklift. Thanks to the big valve cross-section lifting and lowering is much faster than in other vehicles. New functions provide automatic wheelbase control, reducing tire wear and improving drivability through curves and roundabouts. The new ECAS solenoid valve (LACVi) is predestined for this new function.

PNEUMATIC EXTENSION MODULE (PEM)

The version of the Trailer EBS E1 with the integrated Pneumatic Extension Module comes complete with an overload protection valve and a charging valve to provide auxiliary circuits. 21 fittings allow immediate, direct connection of all pneumatic pipes. Different fittings are available for the supply – brake – and for connection of auxiliary circuits (ECAS, lift axle or rotary slide valve). This enhances the design of the pneumatic connection so that no additional fittings are required.

NEW POWER CABLE WITH ROUND PLUG

The new 7-pin cable for ISO power supply to the Trailer EBS E1 has a diameter of only 26 mm, so it fits every channel in the trailer. No separation is needed.

CAN DIAGNOSIS

With Trailer EBS E1 the vehicle can be put into operation via the 7-pin power supply cable, eliminating the need for an additional diagnostic cable.

MECHANICAL SUSPENSION

Trailer EBS E1 allows easy connection of mechanical suspension. The electrical height sensor measures the deflection of the spring and automatically controls the vehicle's load-dependent brake pressures.

AUTOMATIC BRAKING OF ROAD FINISHERS

When a truck/trailer combination is operated in front of a self-propelled road finisher, Trailer EBS E1 provides automatic braking of the semi-trailer up to 10 km/h. It is possible to use proximity switches with two terminals for the finisher brake and also for the unloading level. This new function safes additional components and money.

New features that save you components and money

Features	Standard	Premium
Max ABS system	2S/2M	4S/3M
Roll Stability Support (RSS)	X	X
Stoplight power (24 N)	X	X
GIO Ports	GIO 1-4	GIO 1-7
Number of GIO power amplifiers	4	10
Number of analogous inputs	2	2
Control of external EBS/ABS relay valve		X
CAN 5 Volt for subsystems (IVTM, Telematics, SmartBoard, etc.)	1	2
TCE-port for light monitoring and ramp approach assistance	X	X
ECAS remote control, remote control box		X
ECAS truck/trailer combination control		X
GIO functions	Max. 4 GIO functions at 4 GIO ports	Max. 13 GIO functions at 7 GIO ports
Lift axle 1 (with lift axle valve or ECAS valve)	only lift axle valve	X
Lift axle 2 (with lift axle valve or ECAS valve)	only lift axle valve	X
ECAS remote control, remote control box, control via switches	X	X
ISS1 (e. g. rotary slide valve with RTR function)	X	X
ISS2 (e. g. trailing steering axle)	X	X
Dynamic wheel base control		
Traction help (TH) axle 1 semitrailer	X	X
Forced lowering of the lift axle(s)	X	X
Manoeuvring assistance axle 3	X	X
Automatic kingpin load reduction		X

BRAKE RELEASE FUNCTION CONTROL:

This special function is needed for e.g. car transporters to easily load cars on the trailer. The brakes are released by tipping a switch while the trailer is standing still. The driver has now the possibility to change the length of the hydraulic struts for easier loading.

TORQUE RELEASE FUNCTION:

In case of load and unload of the trailer, the axle unit is cramped when the brakes are released with the consequence of an abrupt high jumper of the trailer body. The new torque release function avoids the jumping.

STEERING AXLE CONTROL:

This function allows the control of the steering axle via speed or recognition of driving backwards.

WARNING OF TIP OVER OF TRAILERS:

To control the angle of inclination, it is possible to show the set angle in the SmartBoard or to give a warning signal via a lamp or a horn.

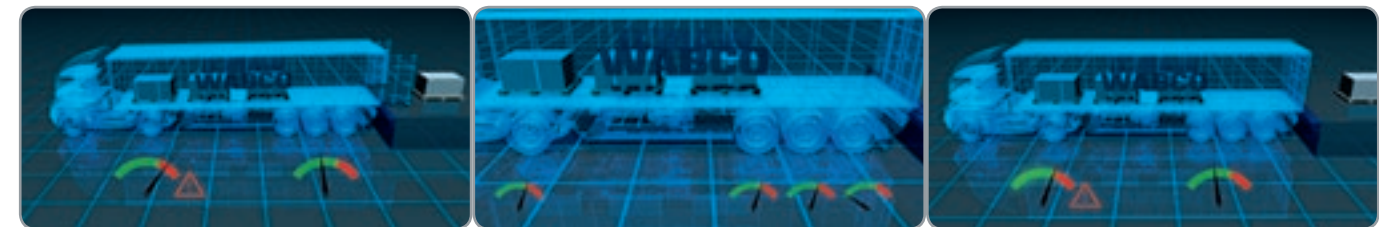
TRAILER TELEMATICS:

The new WABCO Telematics system can be connected to Trailer EBS E1. This Telematics unit covers different data of the trailer and gives it to the central of Telematics. This covered data can be retrieve in the central.

Trailer EBS E1 Generation functions



Features	Standard	Premium
Brake lining wear indicator	X	X
Free programmable digital input/output, Event memory in the ODR	X	X
Free programmable analog input/output, Event memory in the ODR	X	X
Roadfinisher brake (paver)	X	X
External axle load sensor	X	X
External brake pressure sensor	X	X
ECAS 1 point control		X
Mechanical suspension (for 1 or 2 height sensors)		X
Warning for tip over of the trailer	X	X
Lock of steering axle	X	X
Torque release function	X	X
Brake release control	X	X
Driving level II		X
Tractionhelp for off road	X	X
Proximity switch for road finisher brake		X
Unloading level (usable as driving level IV)		X



WABCO offers two variations of the Trailer EBS E1 Generation ECU – Standard and Premium. In addition, these variations are available with different supply ports for brake and auxiliary consumers with and without the Pneumatic Extension Module (PEM).