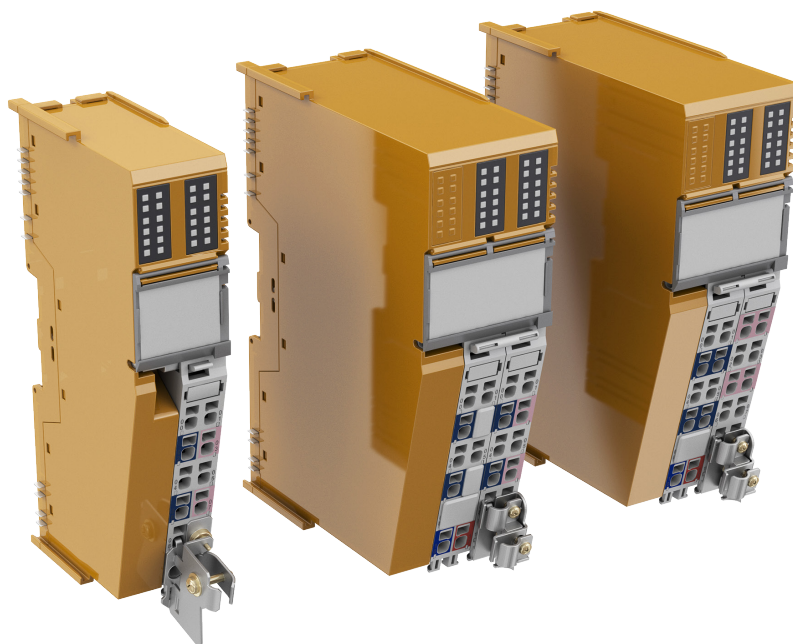




SAFETY



SMARTIO® FUNCTION MODULES SIGNIFICANTLY REDUCE COST

Wheel Slide Protection, Brake Cylinder Control and Counter Input Extension are now part of the flexible and cost-saving Smartio® concept

The new wheel slide protection family WSP3 revolutionizes the wheel slide protection function on rail vehicles. Compared to the previous "stand-alone architecture", the new system approach offers comprehensive integration into the Selectron Smartio® concept.

The wheel slide protection, the brake cylinder controller and the counter input extension are now newly integrated in the Smartio® function module and are treated like a standard expansion module during installation. Other TCMS functions can be implemented seamlessly within the same I/O node using the standard expansion modules that have been available for a long time (e.g. DI, DO, AI, AO).

The benefits of this new technology are extensive. From saving on network connections and programmable controllers, to simplified wiring thanks to the decentralized network architecture, to minimizing latency times because the control of the function modules takes place where they are needed.



SELECTRON

Convincing user benefits offer cost advantages

For applications such as wheel slide protection (SWSP), brake cylinder control (SBCC) and counter input functionality (SCIT), the new expansion modules are **fully integrated** into the proven Smartio® system, **saving recurring installation costs**.

"Just Enough" module concept in the Smartio® form factor offers the advantage of **scalable costs**; you only pay for the functionality you actually need.

System configuration, system diagnostics, and any system expansion are handled by the higher-level central computer unit (MAS 94x).

All components are **designed to meet SIL 2 safety standards** and comply with EN 50128 and EN 50129 standards.

Generic approval in accordance with the LOC&PAS TSI directive has been implemented.

The **decentralized system architecture** offers improved wheel slide protection availability, and the short cabling distances improve EMC.

Flexible integration into any TCMS architecture (new vehicles as well as vehicle modernization).

Higher performance through optimal control behavior due to proximity to sensors and actuators.

Technical data

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| <ul style="list-style-type: none">■ SIL Wheel Slide Protection (SWSP) is the hardware component of the Smartio® wheel slide protection solution WSP3■ 2 groups of encoder inputs and WSP valve outputs■ Full WSP mode: integrated in the WSP3 system■ Standalone mode: e.g. for towing operation | <ul style="list-style-type: none">■ SIL Brake Cylinder Controller (SBCC) contain a local pilot pressure regulator which can easily be integrated into a brake control system■ 2 groups of analog pressure sensor inputs and valve outputs■ Open-loop mode: maintain pressure, depressurize, pressurize■ Closed-loop mode: active pilot pressure regulation | <ul style="list-style-type: none">■ SIL Counter Input ExTension (SCIT) is a decentralized solution for safe reading of frequencies■ 2 groups with encoder or frequency inputs■ Encoder mode: 2 × A/B signals with 90° phase shifting■ Counter mode: 2 × A/A signals without phase shifting |
|--|--|--|

Discover the full range of smart solutions and services



Communication Technology

Invisible to the eye from the outside, train bus couplers, switches and converters perform indispensable functions in the safe operation of modern rail vehicles. The industry is currently in the midst of the transformation to Ethernet-based communication - with major challenges for train manufacturers and rail operators.



Our services - your success

Nothing is more important than responding to customer- and project-specific needs. We help projects achieve rapid success - with the right hardware architecture, reliable components, efficient software tools and overall knowledge transfer. Our job is to support you from the initial concept idea to the end of the lifecycle.



Holistic cybersecurity approach

The digitization of the railways is moving at high speed. The flip side of the coin: The rapid pace of technological development makes rail vehicles vulnerable to cybercrime. All the more important is that you can rely on someone who keeps an eye on the big picture. Selectron is on the spot with its forward-looking cybersecurity solutions.

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 **KNORR-BREMSE**

 **SELECTRON**

 **NEW YORK AIR BRAKE**

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