



**Railway signalling**  
 Switching the points. Safely and reliably.

## □ Railway signalling system

Electrical and electronic components, subsystems and systems for control, safety and automation of the track system in guided traffic.



**Systems**  
 More info & products

- ▶ Tiefenbach locally operated points technology and signalling installations for marshalling areas
- ▶ Remote control systems for relay points control systems
- ▶ Technically supported train control operation (TUZ)



**Subsystems**  
 More info & products

- ▶ Axle counting systems
- ▶ Point controller
- ▶ Microcomputer system COMPEX
- ▶ PC operating and visualisation system



**Components**  
 More info & products

- ▶ Rail sensors (wheel sensors)
- ▶ Signal processing and evaluation
- ▶ Signals
- ▶ Control Units



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## □ Axle counting technology

### Punctate acting rail contacts / wheel sensors:

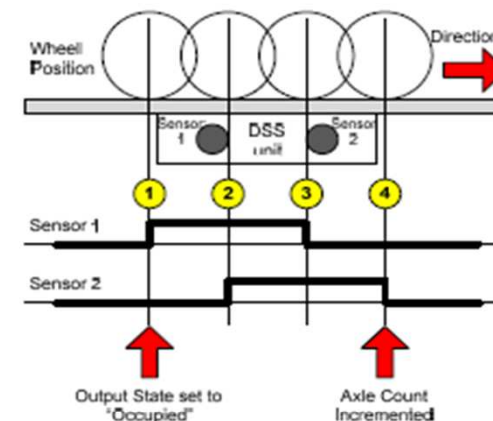
- contactless detection of the wheel rim up to 350km/h (higher speeds theoretically possible)
- double analog system with two independent inductive acting proximity sensors
- installation at the rail web or by claw
- loosening detection possible by additional pair of sensors or predamping of the rail (depending on model)

### Applications:

- train detection and positioning
- direction detection
- speed measuring
- axle counting systems for clear track signalling

### Advantages:

- wear-free throughout the whole lifecycle
- compact design
- robust and weatherproof (IP67)





BUHLMANN

# Pintsch Tiefenbach

Product overview



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**rugged for everyday...**



**where is the sensor...  
not visible...  
but he still works!**



**destroyed housing...  
but he still works!**



**weatherproof...**



**destroyed housing...  
but he still works!**





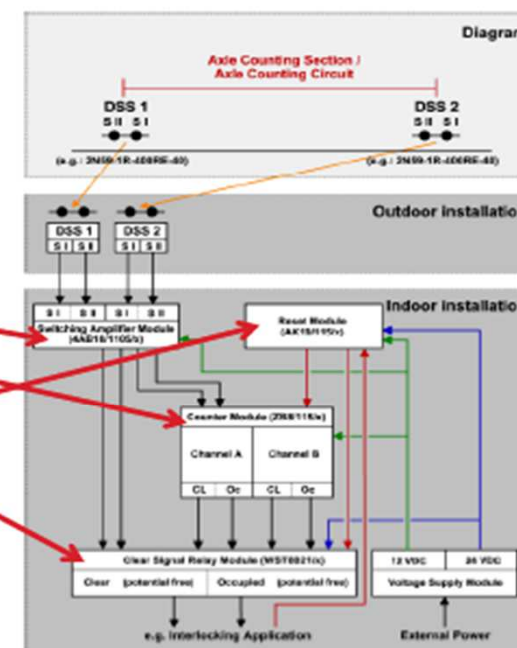


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## □ From “simple” track detection systems

In his simplest form a track vacancy detection section (axle counting circuit) consists of:

- one (for a dead-end track) respectively two double wheel sensors (DSS)
- junction boxes to connect the various DSS
- an electronically axle counting system for:
  - dealing with DSS impulses for further processing
  - registration and processing of DSS impulses in an electronic counter
  - output of the occupancy status to a parent system
  - possibility to reset the axle counting system





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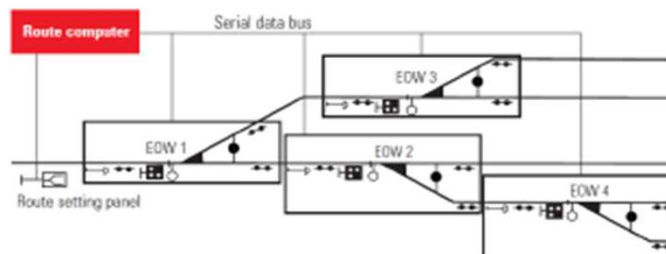
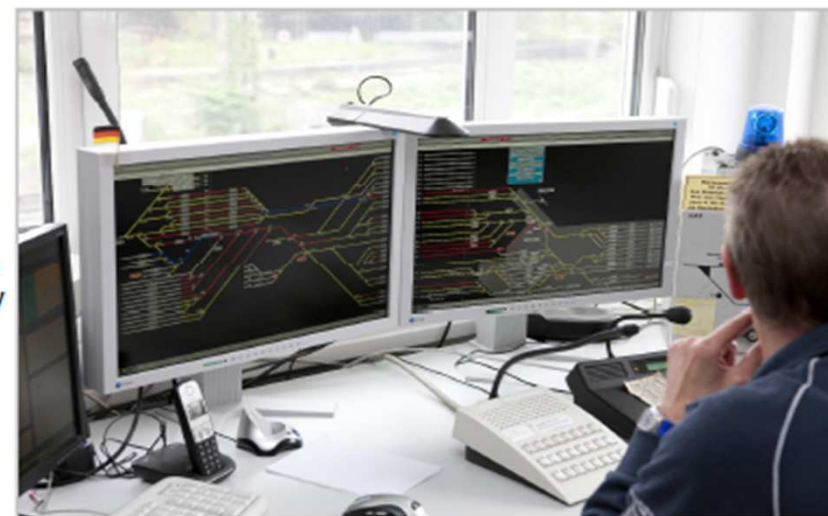
□ To more ...

### Central operating workstation

- standard commercial industrial components used for PC and screens
- serial communication with route computer (COMPEX®) to control all associated points
- individual control of all associated points and setting of shunting routes
- mapping of the procedure protected message screen based upon the directive of Deutsche Bahn AG to prevent errors made by the operating staff
- Long-term event logging with diagnostic options and reporting
- local operation of shunting staff (e.g. via push buttons) can be blocked by dispatcher for central operation only



19" rack example





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□ And more ...

For track vacancy signalling of:

- Metros
- Depot
- Marshalling Yards

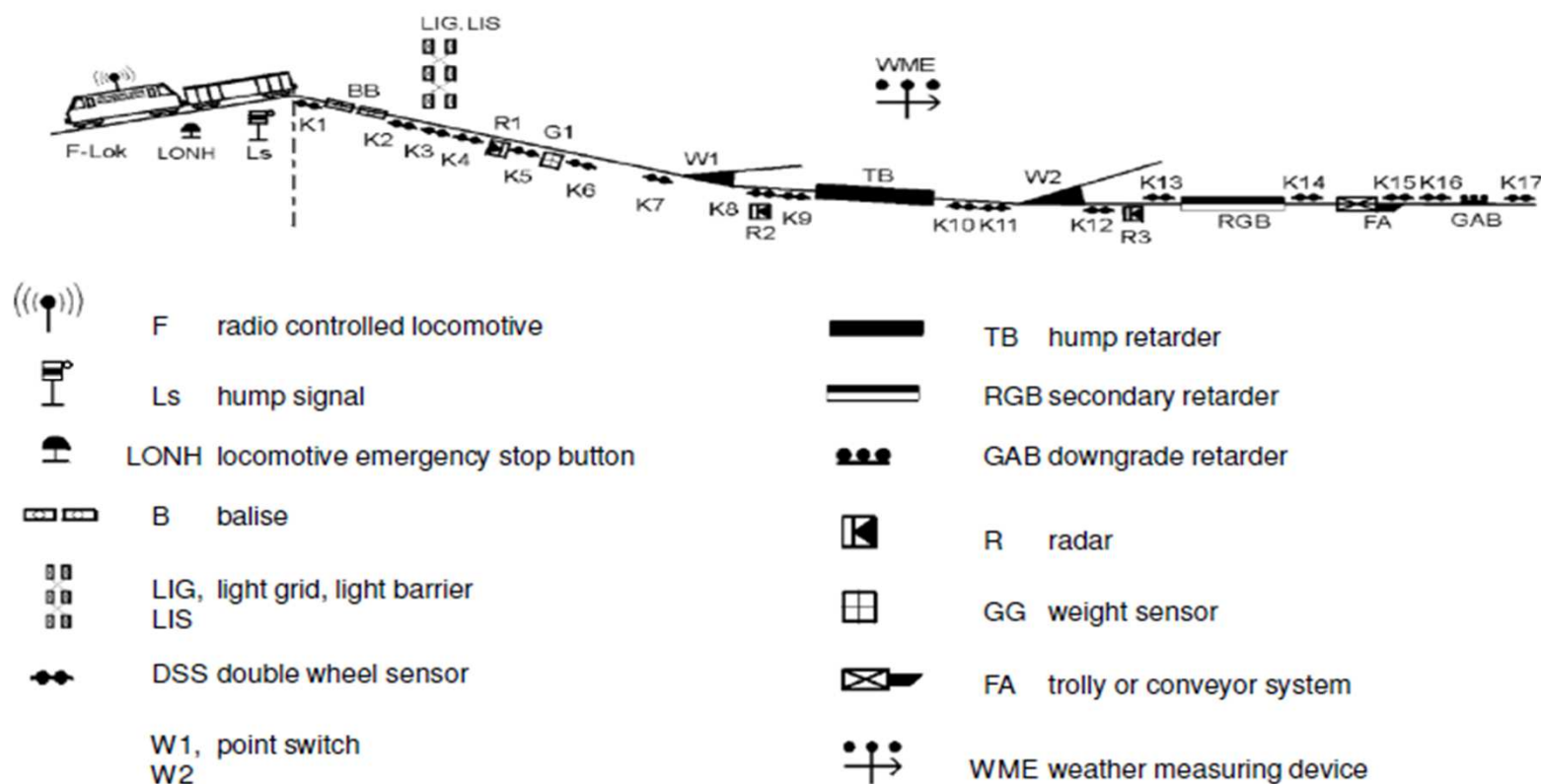






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□ ...and more complete solutions





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control terminal and  
visualization



signal



radar



light grid and light barrier  
double wheel sensors



hump retarder



secondary



downgrade retarder



trolley or conveyor





**Marshalling and Hauling  
Equipment**  
Efficient. Variable. Practical.

## ❑ Marshalling and Hauling equipment

Locally stationary electromechanical shunting equipment for automating the marshalling, handling and loading processes in guided traffic.

Trailing or shunting equipment uses rope traction operated shunting cars which apply to the wheelsets of the wagons and transport, decelerate and position these in the required position. The rope traction units are driven by base stations that are controlled by means of the latest frequency converter technology. The main application area for this technology is the area of high power train formation yards of Deutsche Bahn AG and other railways, but also automated loading systems in industry and mining as well as train wash lines. PINTSCH TIEFENBACH has a know-how acquired in more than 30 years of experience. Due to a continuous process of further development and improvement of essential system components the work process and thus also the costs for system maintenance were reduced to a fraction of the usual amount.

### Applications:

- ▶ Train formation yards
- ▶ Wash lines
- ▶ Loading / Unloading station



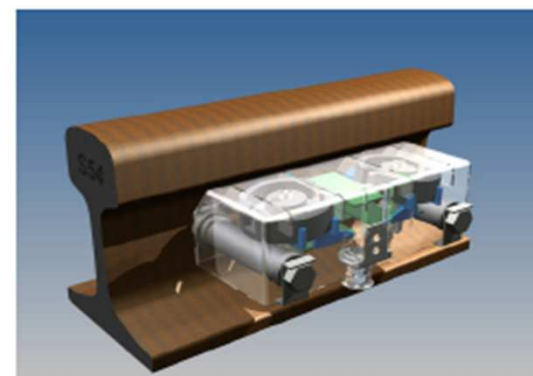


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## □ Coming soon

### Improvement of the double wheel sensor

- series 400: design in SMD technology
- series 600: improvement of loosening detection
- series 500: DSS with “through drilling” for assembling



### Development beginning of the electronically AZ 2.0 in 2013

- serial BUS system with all known advantages
- Webbrowser based configuration und control
- minimized wiring by system connectors
- space-saving installation on standard DIN rail

