



AIS AUTOMATION
SOFTWARE SYSTEMS

AIS Automation Dresden GmbH

Innovative software solutions for railway technology

Gunter Heintze

Head of department railway technology

Portrait & History



- AIS is a certified Q1 software supplier for German Railway (Deutsche Bahn AG)



- AIS is a system and software house for control systems, automation technology and IT solutions
- AIS operates in the area of automation and information technology for more than 20 years
- AIS Automation Dresden was founded in 1990 with 8 employees and currently employs 150 people

AIS Automation Dresden worldwide



AIS AUTOMATION
SOFTWARE SYSTEMS

More than 150 experienced
employees.

AIS Headquarter

Sales, Service & Support in
Europe

Meyer Burger Shanghai

AIS Service und Sales in
China

AIS Representative Office

Hillsboro - Oregon
Service & Support in USA

AIS Representative Office

Taipei / Taiwan
Service & Support in Taiwan



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Business Fields & Industry Experiences



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Fab automation and analysis (MES)

Photovoltaic / semiconductor / automotive industry

Equipment and system integration (Host adapters)

Photovoltaic / semiconductor / automotive industry

Equipment / tool control

Photovoltaic / semiconductor / pharmaceutical industry, vacuum technology

Control systems / software solutions for traffic technology

Railway technology



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Innovative software all over



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- **Internet →** email, search engines, Wikipedia, Youtube, social networks like facebook, xing, cloud computing
- **OS →** Windows, Linux, iOS, Android, Windows Phone for PC, laptop, tablet PC, mobile phone
- **Mobile Computing →** WiFi, GSM, GSM-R, UMTS, HSDPA, LTE
- **GPS →** mobile navigation, geocaching, automatic identification systems (AIS), geo information systems (GIS), Google Maps
- **Construction / tool control →** CAD, CNC controlled tools, PLC like SIMATIC, Beckhoff, Allen Bradley
- **Traffic engineering →** ETCS, traffic lights, railway control center, logistics systems, sorting facilities for freight trains
- **Gadgets →** mp3-player, coffee machines, robot lawn mower, camcorder



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Innovative software for shunting



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Shunting without software?



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- Controlling speed and distances of free running freight-wagons with drag shoe braking is a dangerous and hard job.



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Shunting without software?



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- Drag shoe braking: Sometimes with unexpected results...



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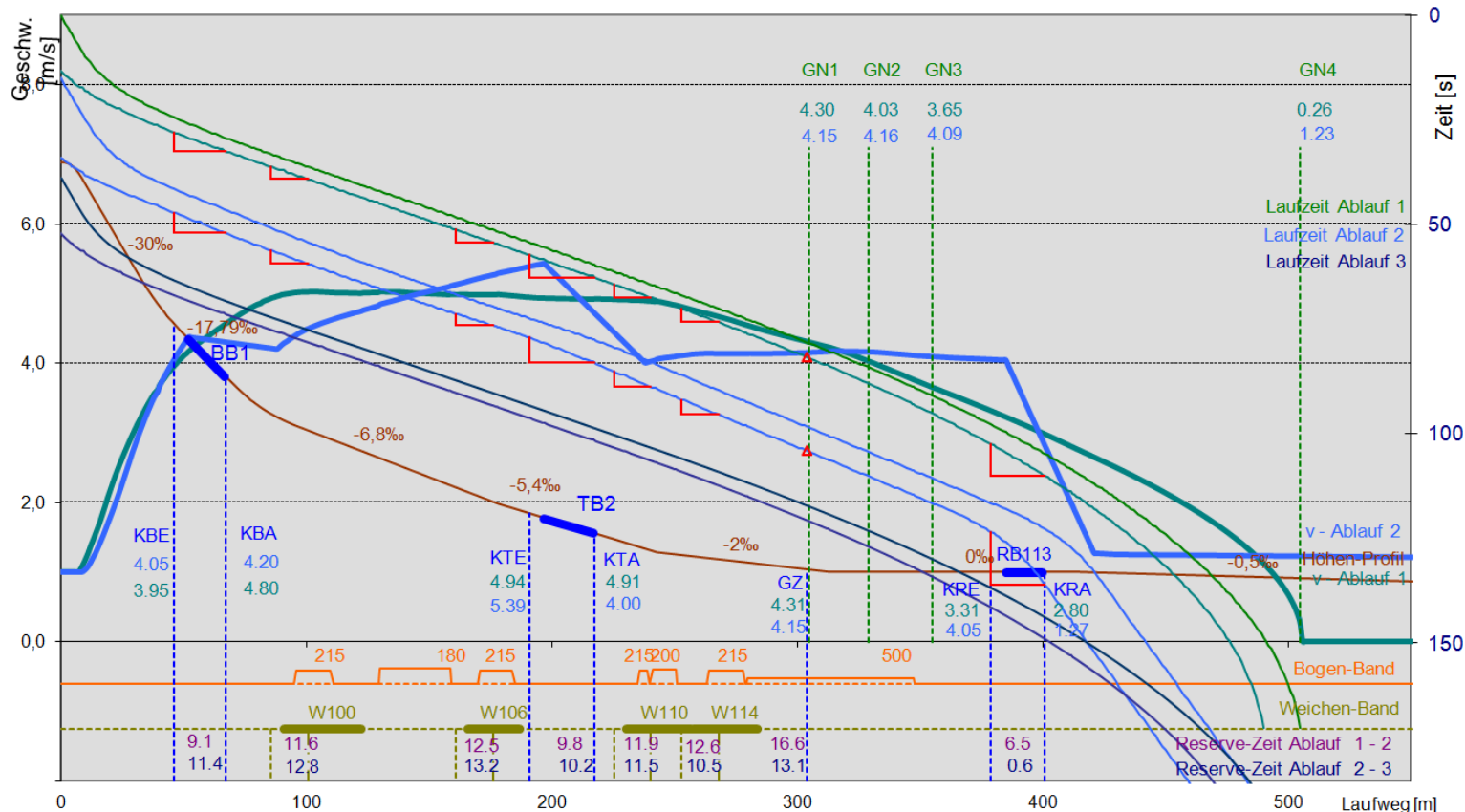
Innovative software for shunting



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Rbf YGR
Ri.-Gl. 13
Ablaufolge: S24 - G200 - S24

S24: LüP= 15 m RSL= 6,0 t RDS= 4 wr= 4,7 %
G200: LüP= 24 m RSL= 25,0 t RDS= 8 wr= 0,5 %
v-Abdruck= 1 m/s v-Wind= 3 m/s Winkel= 0° (Gegenwind)



- Kinematic calculations for performance and conflict estimation of sorting facilities.



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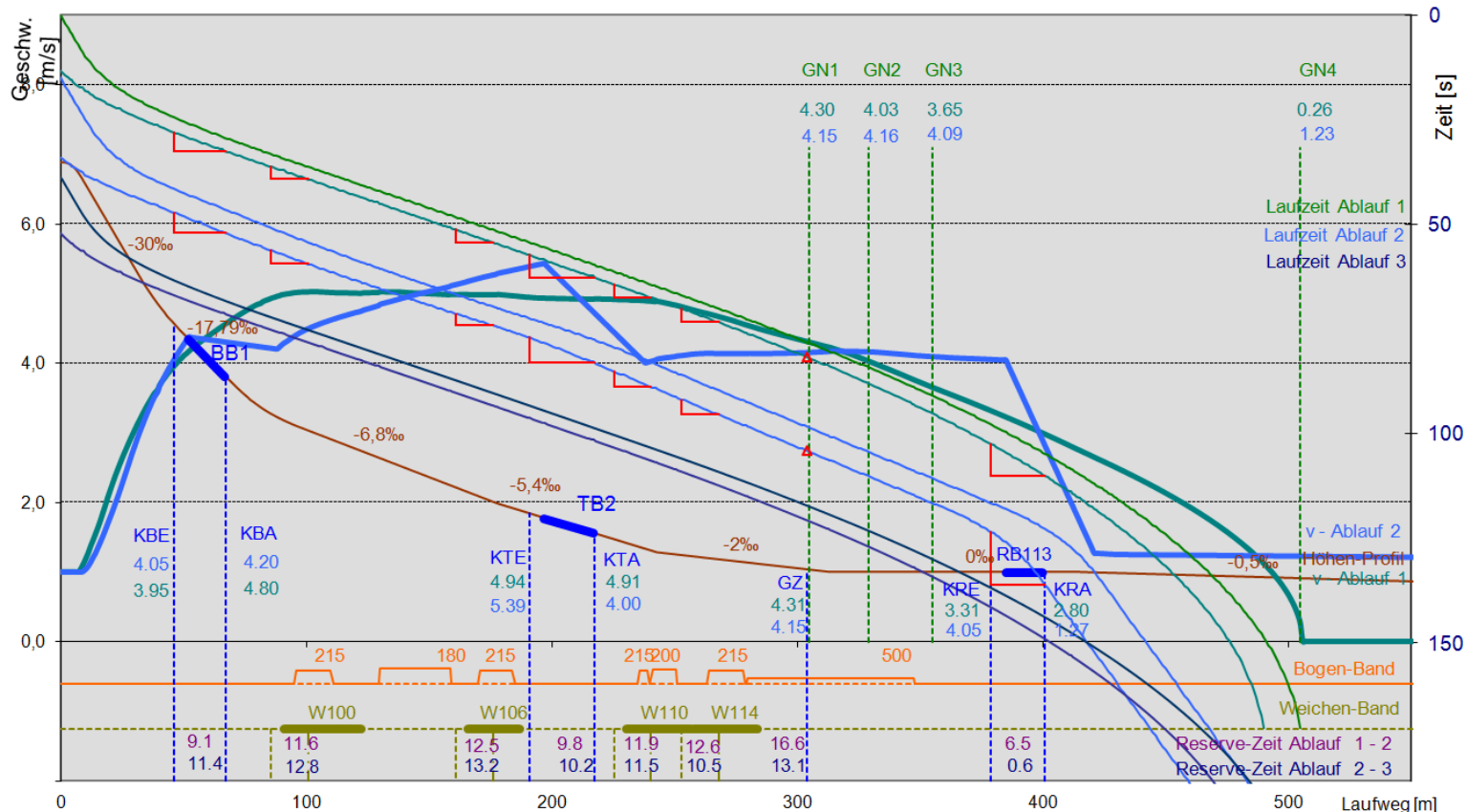
Innovative software for shunting



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- Kinematic calculations to control speed, distances and pushes of free running freight-wagons within sorting facilities in real-time.



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- Control retarders (a kind of modern drag shoe) to brake freight-wagons according kinematic models in real-time.



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Trucks: Current situation



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- Board computer
- On board unit (Toll Collect)
- GPS tracking
- ABS, ESP, ACC
- tachograph / odometer
- navigation system



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Freight wagons: Current situation



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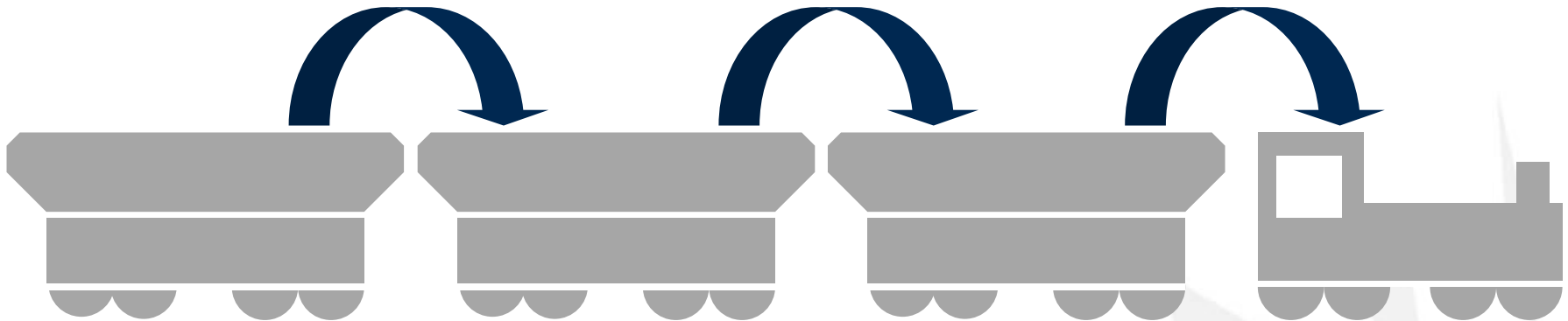


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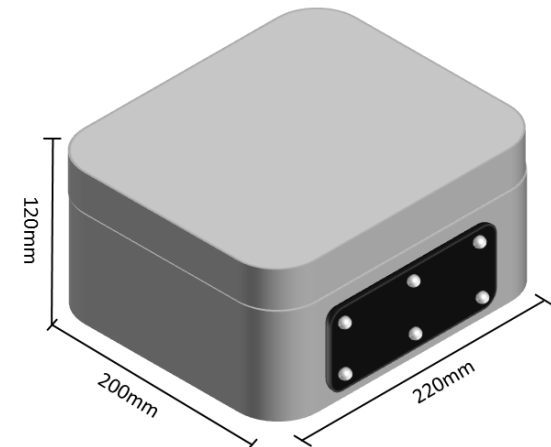
Innovative software for freight wagons



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- Special, innovative and local radio communication within freight trains
- Independent from external radio infrastructure, e.g. GSM
- Extended battery live time (>4 years)



Var0BU



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Use cases



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- GPS tracking
- Hot box detection
- Automatic rail brake test (field tested)

- Automatic load control / cargo inspection
- Hand brake detection
- Wheel flat detection



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Solutions for railway technology



AIS AUTOMATION
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Solutions

Control software

Sensors

Rolling stock

Variable retarder
control system

Train wash
systems

Variable weather
measurement station

Variable
on-board unit

VarGBS

VarTWS

VarWMS

VarOBU



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Your competent partner
for innovative software solutions
in the area of railway technology.