SIGNALLING SYSTEMS AND TURNOUT CONTROLS

INTERLOCKING SYSTEMS

LIGHT RAIL

REGIONAL

HEAVY RAIL

INDUSTRIAL

SERVICES

SPARE PARTS

CONTEC
TRANSPORTATION SYSTEMS

REGIONAL

CONTEC Transportation Systems offers innovative products and system solutions for public transit as well as for heavy rail applications and industrial railways. CONTEC products are well known for their

- Efficiency
- Success
- Safety
- Maintainability
- Reliability

and are proven in world wide applications.

Since 2005 CONTEC is a member of voestalpine VAE, the world market leader for turnout technology.

On a production area of 2500 qm the CONTEC team realises in addition to the modern switch machines and signaling controls individual special solutions as well as planning and installation services.

CONTEC offers technical products with an exceptional quality standard thanks it's long lasting research and development.

CONTEC TCS 300: SIL4 SIGNALLING SYSTEMS WITH AUTOMATIC TRAIN STOP

EXTRA SAFETY FOR TRAIN OPERATION

Transporting people and goods on rail is the most economically friendly way of mobility. World wide heavy investments are made into rail system as a No. 1 factor in future transport.

The demands on the rail systems are increasing. Higher clock rates stress material and traffic super intendents. To guarantee the safety of rail traffic, the super intendents need to be relieved. At the same time, growing competition requires increasing efficiency of existing or planned new lines.

TCS 300: the sustainable investment

The core of the TCS 300 is a SIL 4 approved micro processor control system.

Thanks to the modular and always expandable system architecture planning of the project is very flexible. Whereas a number of systems had to be installed previously, with the TCS 300 only one micro processor system maps the entire operating procedures:

- route setting
- controlling and operating of turnouts
- controlling of routes
- operating automatic train stops
- signal indications according to various standards
- railroad stations and marshalling yards

TCS Visio: HMI the interface to the operator

TCS Visio is a powerful visualisation tool communicating with the TCS 300 via TCP/IP protocol. Thanks to the standard protocol, easy accessing the data in a network is possible with every certified workstation.

All functionalities are clearly displayed on flat screen monitors. For on-site applications, touch screen monitors in various configurations are available.

Remote access to the data base is performed using the TCP/IP protocol, certified for wireless connection by WLAN or GSM/GPRS technology.

Customer Benefit: Project Orientation

Every existing infrastructure can be integrated in the TCS 300 interlocking systems. Standard components of our clients are considered in the planning phase. If there are no special customer requests, our engineers are welcome for recommendations based on their long term experiences from domestic and international projects.

TCS 300 IN SERVICE

TCS 300 INTERLOCKING SYSTEM

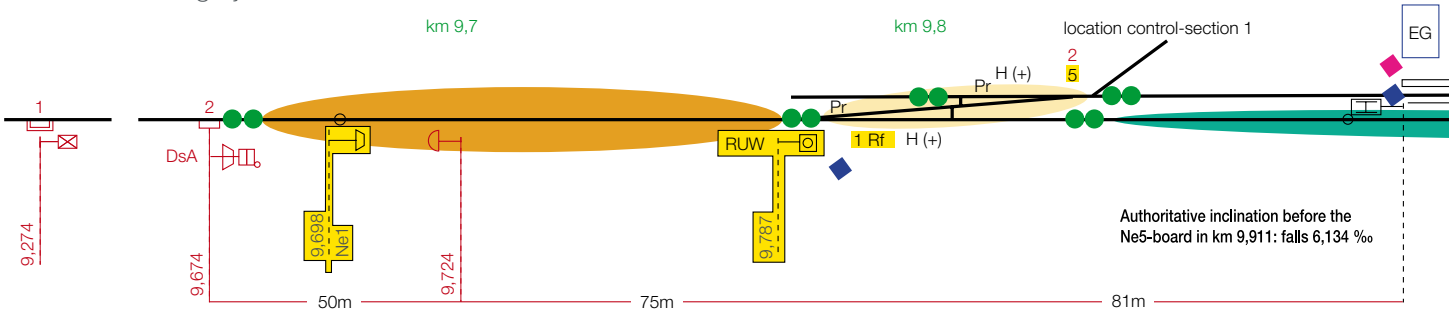
WEG WÜRTTEMBERGISCHE EISENBAHNGESELLSCHAFT

Reactivating a track section and increasing clock rates made a support system for the signalling super intendents necessary.

The operator VEOLIA invested in a CONTEC TCS 300 interlocking system. The combined signalling system covers a wide range of operations at WEG. Track monitoring by axle counters in combination with automatic train stops which was foreseen for the single track section only was extended over the station area. Contec's proposal for integration of the electric operated switches in the signalling system was accepted. The signalling system now works as an interlocking system.

Safety of operation of the railway line was very much increased by combining the functionalities of assisting the super intendents with automatic train stops, operation of the electric operated switches and further items of the track site equipment like key switches, signals etc. Additional dependencies on the items were defined and are laid down in the software programming. The monitoring and ensured safety is much more comprehensive.

TCS Visio is used by WEG as a central control system displaying the system status. After inspection by the assessor and the local railway authority, the system was commissioned on 15.06.2008.



SYSTEM DATA OF THE WEG INTERLOCKING SYSTEM

- Micro-processor control system with SIL 4 approval
- 7 axle counters on 2,8 km of track
- 9 INDUSI automatic train stops 2000 Hz
- 5 INDUSI automatic train stops 1000 Hz
- 2 INDUSI automatic train stops 500 Hz
- 2 electric operated switch machines, with local controls
- 2 manual operated switches with key monitoring
- 1 manual operated switch, electric controlled with end position detector
- 4 signals and 20 signal boards
- Design and planning
- Installation by CONTEC engineers
- Training
- Commissioning

WEG founded 1899 operates four regional railway lines, all of them part of the Stuttgart local transport plan. 14 Regio Shuttle trains and 12 NE 81 train sets are currently in operation.

LEGEND:

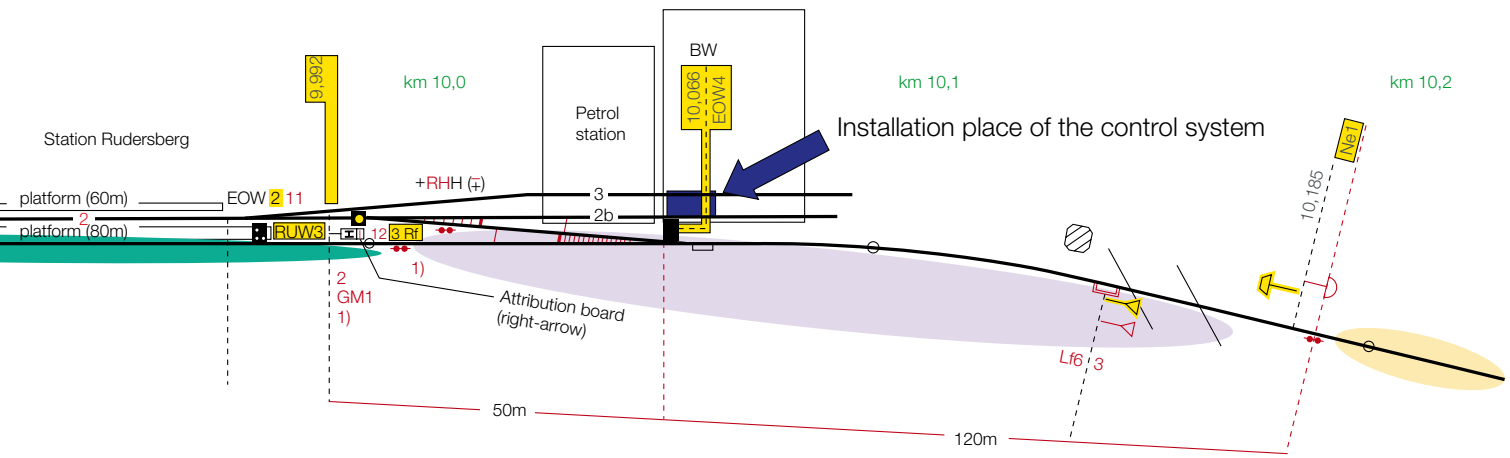
DB 21 with button / depending on ZF – Key

ZF – Key switch
1. Key for turnout 13
2. blocking the station Rudersberg
3. enables the operation of the key switch DB 21

Additional track blocks

Additional axle counters

Key for manual keys W1, W2 and W5 under lock at ZI on the key holder in the station Rudersberg-Centre.



CONTEC SYSTEM COMPONENTS

THE MATCHING TRACK SIDE EQUIPMENT FOR EVERY JOB

Switch Machines and Switch Setting and Locking Devices

With the UNISTAR, UNISTAR HR (please see next page for details) and the ECOSTAR, shown on the right hand picture, CONTEC is setting switches to success.

Highest quality of material, oversized components for extra durability and compact design are typical for CONTEC products.

Mono-Block hydraulic units, designed in-house, do not require any hydraulic expertise for operating and are meant to be no-maintenance black box units guaranteeing trouble free service.

Signals

LED signals for various signal devices according to national standards are available from CONTEC. The colour of the LED's can be chosen from a wide variety.

For LRT applications CONTEC designed the UNILIGHT, a unique signal. Thanks to the matrix design, every sign can be shown on one signal only. An almost unlimited number of signs can be stored on the on-board controller.

Current controls with automatic checking of all LED's is a standard as well as automatic brightness controls for optimised day / night or sun / shade operation.

Bonding Equipment

For a permanently connection of cable to the rails, we strongly recommend to use the long term proven CONTEC Bonding Plugs.

The SDK 02 bonding system is characterised by very simple installation. No special tools such as hydraulic tools are required. A simple torque wrench does it all. A gastight connection to the rail web is guaranteed.

SYSTEM COMPONENTS:

REFERENCES:

- Deutsche Bahn AG
- BVG Berlin
- SW Frankfurt
- Basel Land Transport
- Linz Linien
- Metro Sevilla
- Metropolitano de Alicante
- Metro do Porto
- Metro Sul do Tejo
- RATB Bukarest
- RATT Timisoara
- CTP Arad
- Istanbul Ulasim
- Trambus Rom
- VMR Phoenix
- Sound Transit Seattle
- Metro Taipei
- ÜSTRA Hannoversche Verkehrsbetriebe AG
- Ferrocarrils de la Generalitat de Valencia
- RNV Mannheim und Heidelberg

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CONTEC TRANSPORTATION SYSTEMS

UNISTAR HR: SWITCH SETTING & LOCKING SYSTEM FOR HEAVY RAIL

The UNISTAR HR is the latest generation of CONTEC switch setting and locking systems and it ideally complements the TCS 300.

Various installation options

The compact units allow any position on track. The units can be installed on top of a hollow or concrete sleeper (tie) or between sleepers (ties) were you would usually have the rods.

Switch points as well as moveable point frogs can be operated by one or multiple locking units which are identical thanks to adjustable throw. Power supply is always done by one central Mono-Block hydraulic unit.

Internal Prism Locking Device

Using a few parts only and creating a complex and safe operation. CONTEC achieved this with the Prism Lock.

Placed inside the sealed stainless steel locking unit box (up to IP 67) all locking and detection modules are located. The central driving cylinder transmits the driving force directly on the locking components and the drive rod.

All units are visible. The overlapping of the locking device can be measured and visibly checked.

The detection system is part of the operation of the setting device. Detector bars acting accross the setting direction check the end positions of the lock and the detector rods and lock the detector rods in place as a back up to the locking device.

Indicators allow precise adjustment of the detector rods – day and night.

The latest German Railways specification for locking devices and switch machines are met.

UNISTAR HR: