

Railway safety control systems for depots



Furrer+Frey

FL 200/260 (T)

Conductor rail

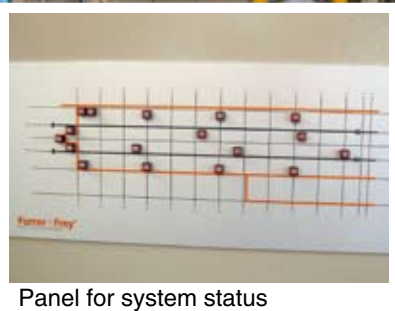
Overhead contact lines

Railway safety control system for depots

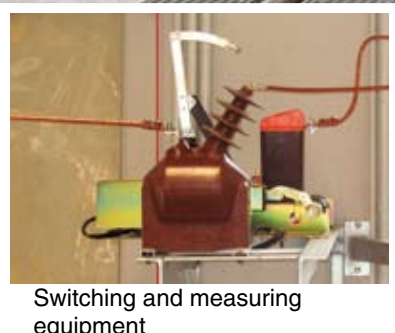
Engines and tools



Emergency stop push-button-concepts



Panel for system status



Switching and measuring equipment



Key locking systems



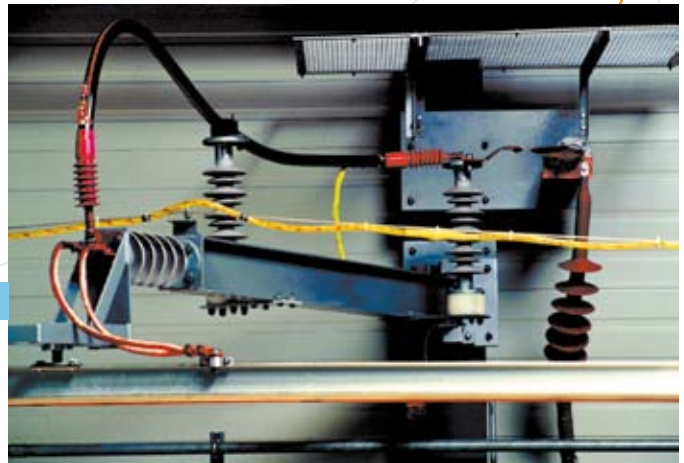
EL-6-Signal

Bombardier commissioning shop in Pratteln



Test train

In the commissioning shop are two test tracks, each 120 m long. Each track has four testing locations. The movable conductor rail is feeding the pantograph with high voltage.



Overhead contact line

Feeding arrangement of the movable conductor rail and yellow running light which indicates the powered system.

Falling safety equipment

Integrated into locking concept



Switchgear

Remote-controlled disconnecting switches



Main control cabinet

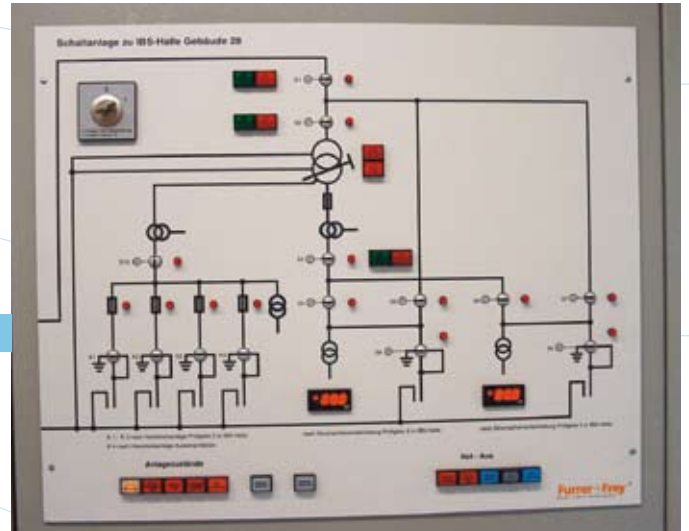
Panel is indicating the system status. Keys are an important part of the security standard.

Key data

- 2 tracks, each 120 m long
- 15 kVAC, 0-20 kVAC, 1 kVAC test voltages
- Movable conductor rail system
- Power supplied via cable for high voltage feeding
- System control unit

Energy Flow Panel

Shows the actual state of every breaker



1000VAC feeding unit

Outdoor testing unit with emergency stop push-button

Auto transformer (0-20 kV)

1000 kVA transformer with 3 tapping points



Mobile operating panel

4 operating panels per track to select the required test voltage (15 kV, 0-20 kV, 1 kV)

ICE shop, DB AG, Krefeld



Test track 1A

Overhead contact line, insulated to 75 kV

Sectioning of 15/75kV system by movable conductor rail



Earthing switch, 75 kV

Component of safety concept

Emergency stop push-button system

140 emergency stop push-buttons are installed throughout the shop with a linkage to the overhead contact line control system





Key data

- 3 tracks, each 225 m long
- 670 V - 75 kV test voltages, AC + DC
- Movable conductor rail installation
- Power supplied via high voltage cables
- Control unit
- Switchgear
- Emergency stop push-button
- Movable conductor rail

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Main control cabinet

Switch key to start up the different operating modes:

- Train movement
- Test field operation
- Platform operation

Conductor rail

Overhead contact lines

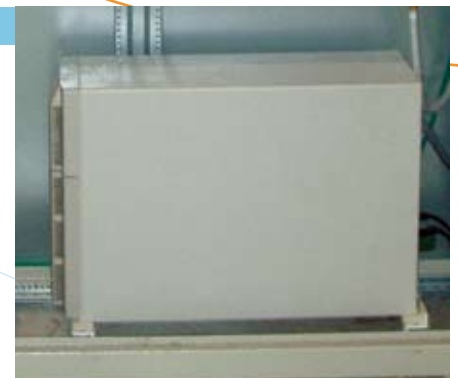


UPS

Uninterruptible power supply

Signalling

Devices for the optical and acoustic display of the system status



Railway safety control system for depots

Engines and tools

Branch line to gravel plant Sutz-Lattrigen, Asm



Narrow gauge

with automatically tensioned contact wire

Key data

- Switchable contact line (2 operating stations per track)
- Branch line
 - Gravel extraction plant 450m
 - Gravel processing plant 570m
- Emergency stop push-button concept
- Signalling of switching status of contact line



Sectioning point

Cabin with contact line control unit and train protection



Main control cabinet

with integrated operating panel



Operating panel

near by gravel extraction plant with switch key for employees

Helgoland Depot, Denmark



Key data

- 4 tracks, each 80 m long
- Movable conductor rail
- 15/25 kV operation
- Monitoring/control
 - Crane position
 - Position of train lifting platforms
 - Access to working platforms
 - Position of earthing rods
 - UPS

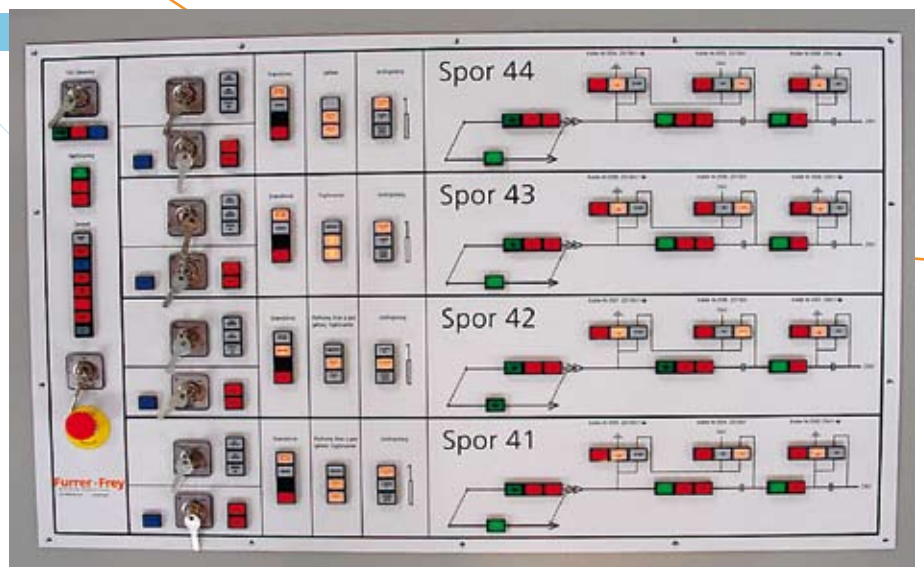
Movable conductor rail

The depot is equipped with 4 service tracks. A movable conductor rail system is installed on each track. A yellow running lamp signals that the high voltage is switched on.



Main control panel

for the service tracks. The system status is displayed at all times. The electromagnetically locked switch key is provided for safe maintenance



Ponte Brolla Depot, Ferrovie Autolinee Regionali Ticinesi



Key data

- 2 tracks, each 60 m long
- Manual earthing rods
- Interlocking of crane and line
- Uninterruptible power supply (UPS)

Switchgear for 1.35 kV DC contact line



Main control cabinet

to signal the contact line switching status



Switching and signalling

- Yellow running lamp
- Rotary lamps
- Signalling horn
- Contact line switch
- Earthing rod with locking cabinet



Locking system

Mechanical locking of crane and contact line control unit

Geneva maintenance shop, SBB



Key data

- 5 tracks, each 220 m long
- Movable conductor rails in two sections
- Yellow running lamp system
- Locking
 - Lifting platforms
 - Crane
 - Earthing rods

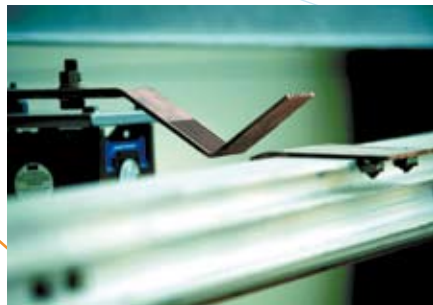
Maintenance shop

with 5 tracks, 4 are equipped with movable conductor rail arrangements



Cantilevers

Motor drive for movable conductor rail system



Earthing

The movable conductor rails are earthed in the non-operating position by means of copper contacts



Contact line switch

Switching of the contact line

Control cabinet

Locking of earthing equipment



Badisch Station maintenance shop, DB AG Basle



EL-6 signal

The contact line status is displayed with an EL-6 signal. The signal is turned to "visible" or "non visible" by an electric motor.



Contact line switch with earth contact

- Contact line switch with earth contact
- Earthing disconnector



Switch drive cabinet

The switches are moved to the correct position by an electric motor.



Key data

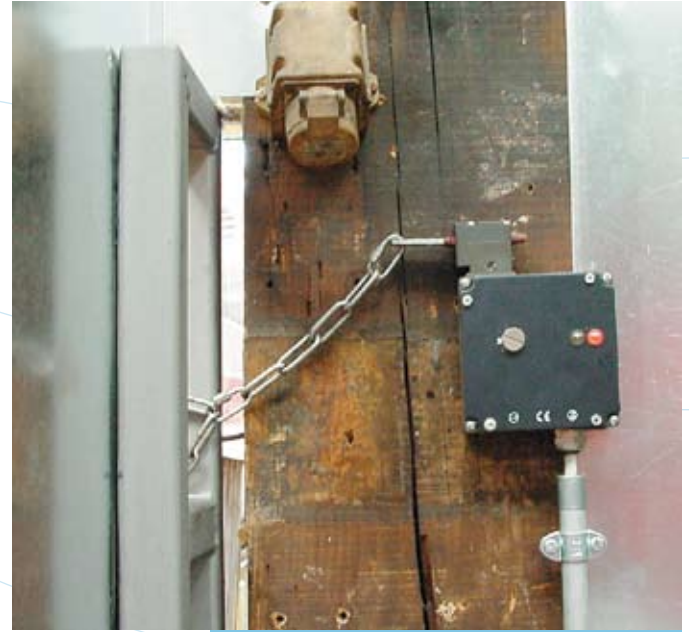
- 2 tracks, each 330 m long
- Manual earthing rods
- Emergency stop push-button
- Yellow running lamp
- Locking
 - Ladder
 - Movable working platforms

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FL 200/260 (T)

Conductor rail

Overhead contact lines



Safety switch

for ladder interlocking

Main control cabinet

Operating panel with key locking and manual earthing rods

Railway safety control system for depots

Engines and tools

Running lamp arrangement

for signalling of powered overhead contact line





Your partner for the planning, supply and installation of safety control systems for the railway industry

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