

TRACK DESIGN

Contact Mechanics 2012
Modelling crossing nose forces
to extend rail life

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A difficult rebirth
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Railway Gazette

INTERNATIONAL

Exploring the wheel-rail interface



Windhoff

Bahn- und Anlagentechnik GmbH

Small, light and efficient

TRANSFORMER: ABB has developed a traction transformer that uses power electronics to reduce size and weight while increasing energy efficiency.

The Power Electronic Traction Transformer is based on multi-level converter topology that uses IGBT power semiconductors and medium-frequency transformers to replace the conventional transformer and inverter combination. The medium-frequency transformer also reduces noise levels.

'The innovative use of power semiconductors in a core component such as traction transformers opens up new opportunities for rail markets around the world, and should be extendable across a range of other applications,' according to Markus Heimbach, head of the Transformers business within ABB's Power



The pilot application of PETT is a 4500 kg unit with a nominal rating of 1.2 MW and short-term peak of 1.8 MW which has been fitted to a 15 kV 16.7 Hz Swiss Federal Railways Ee933 shunting locomotive used at Genève Cornavin station.

Products division. 'In addition to its weight and size advantages, the new PETT helps improve efficiency and reduces noise levels.'

Off-the-shelf signalling trials

SIGNALLING: Trials are underway with Virtual Lineside Signalling, which is being developed by Park Signalling with the aim of using off-the-shelf technology including commercial mobile phone networks, industrial standard RFID tags and iPads to provide signalling at a fraction of the cost of conventional or ERTMS implementations.

Trials on the Foxfield heritage railway and Network Rail's High Marnham test track have been awarded a £100 000 grant by the UK Department of Transport and Rail Safety & Standards Board. Engineering consultancy Frazer-Nash is providing safety validation, verifying whether the system can offer safety levels at least as good as alternative systems.

Richard Jones, business manager at Frazer-Nash, believes the system could 'revolutionise low-cost signalling' on lines with low traffic densities or where there is no money for conventional modern signalling systems. Another possibility is as a temporary back-up when technical failure or cable theft render main systems inoperable.

VLS utilises off-the-shelf hardware together with commercial GSM networks to transmit encrypted messages between the control centre and the trains. All data processing is undertaken in the control centre, with the cab display simply receiving images or stop or proceed indications. No lineside infrastructure is required, other than RFID tags on the track which are used by the train to verify its position.

Level crossing voice warnings

SAFETY: Equipment which issues spoken messages saying 'warning, another train is approaching' is being installed at 63 UK level crossings. Infrastructure manager Network Rail hopes this will reduce the risk of users mistakenly believing that it is safe to cross after the first train.

Research by industry safety body RSSB suggests that voice messages are more likely to be understood and obeyed than the two-tone warning currently used. The spoken alarms will be set to a lower volume at night to reduce the impact on anyone living nearby.

'This was very thorough research which considered many different types of warnings and alerts', said Michael Woods, Head of Operations & Management Research at RSSB. 'Providing a spoken warning for the second train has been proven to provide an obvious message to people wanting to cross.'

'Examining the benefits of "another train coming" warnings at level crossings' is available at www.rssb.co.uk

NEWS IN BRIEF

Sojitz and Meidensha have won a ¥2.5bn contract to supply two 2 MW CAPAPOST supercapacitor regenerated **energy storage** units for Hong Kong's 7 km South Island Line project. These are predicted to cut consumption by 10%.

HaCon has introduced a **proximity search** function to the HAFAS journey planner, enabling passengers to search by travel time rather than location, for example when seeking inspiration for leisure trips.

ZTR Control Systems' Locomotive Battery Saver has a contactor simulating the main battery disconnect switch. It opens automatically after a pre-set delay when the loco is shut down, disconnecting non-essential circuits to extend **battery life**.

Customised features are included in the RC900 **GSM-R cab radios** and DMI900 control consoles which NEC is to supply to Finnish operator VR. An event log stores the last communication made, with remote access to alarms test results and keys pressed. There will be the possibility of 'Over The Air' software upgrading to reduce the amount of time trains are stopped for maintenance.

Disruption intelligence

AUSTRALIA: Siemens is to supply and support 'intuitive' technology to optimise timetabling on RailCorp's Sydney - Blacktown corridor.

'Our control system is capable of re-routing and prioritising trains automatically in the event of disruption', said Paul Bennett, Siemens' Vice-President of Mobility & Logistics. 'This intuitive technology helps to predict the best outcome for RailCorp and its assets to effectively respond to any new situation.'

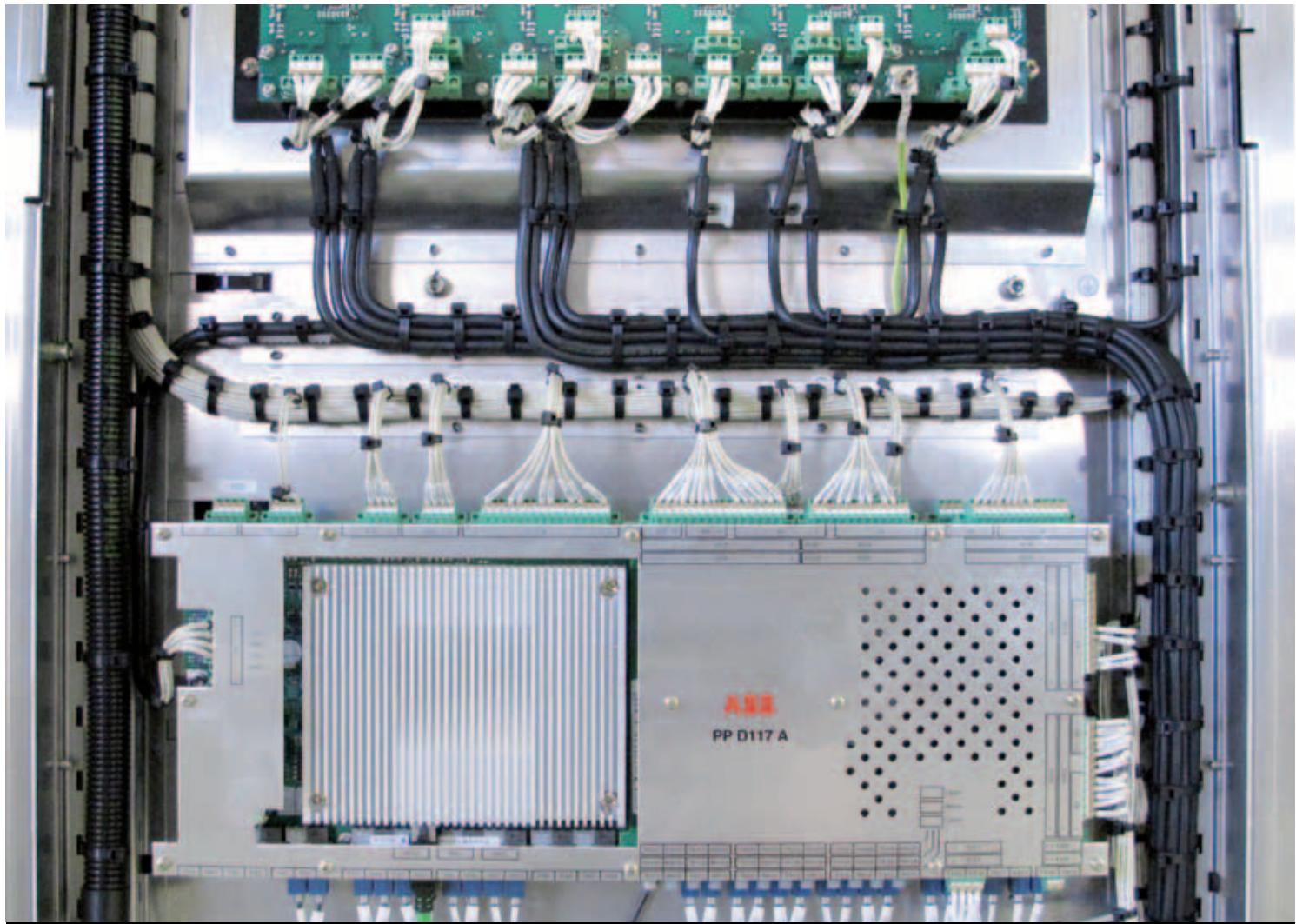
The system can verify new timetables offline, creating 'virtual disruption' to assess the impact. It can also be used during real incidents to intelligently route and prioritise trains to optimise service recovery. Deployment is scheduled for 2014.



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