



# DEHN protects.

Railway level crossing warning mechanisms

## Customer

PINTSCH BAMAG Antriebs-  
und Verkehrstechnik GmbH

## Project

### Industry

Railway supply industry

### Application

Lightning and surge protection for electronic railway level crossing warning mechanisms with Condition Monitoring

### Hardware

BLITZDUCTOR XT BE 36  
DEHNrecord MCM XT  
DEHNguard

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## Railway level crossing warning mechanisms



Today PINTSCH BAMAG Antriebs- und Verkehrstechnik GmbH counts among the most successful manufacturers of safety products for railways and waterways. High safety standards therefore are a matter of course. All over the world level crossings are the neuralgic points of railway systems. Their safety and the coordination of the road and railway traffic require highest reliability conjoint with simple operability and this at low investment and maintenance costs.

To ensure this also during lightning PINTSCH BAMAG apply devices and components of the lightning and surge protection specialist DEHN.

Today the modern railway level crossing warning mechanisms are fully electronic and computerised systems. Therefore in comparison to the old relay technology these new systems with their electronic components are more sensitive to over-voltages. The control distances of the peripherals on the track such as inrush loops and monitoring signals can be up to 2.5 km in both directions from the concrete substation. Therefore a direct lightning stroke or surges cannot be excluded. Therefore PINTSCH BAMAG has developed in close cooperation with DEHN and DB Netz AG a novel lightning protection concept for which certification has been obtained by the Eisenbahn Bundesamt (German Railway Authority) already in May 2008.

The lightning and surge protection concept allows the operator of railway level crossing warning mechanisms to protect his systems effectively against the hazardous consequences of surges due to lightning strikes or switching operations. For proof of energy coordination of the arrester modules and the protective circuit on the RBÜT modules tests in the lightning current laboratory of DEHN have been carried out. Evidence of the correct performance of the lightning protection concept was provided.

Implementation of lightning current and surge protection components increases the system availability. More and more insurers insist on additional protective measures on the part of the operator after an event of damage or loss caused by an overvoltage occurrence. Expenditures for establishing of lightning and surge protection are less than the costs caused by surge damage in the system. Presently the lightning protection concept described in this paper is applicable for the level crossing techniques type RBÜT and BÜP.



### Benefits of the DEHN solution

- ➔ Laboratory tested protective effect
- ➔ space saving protective elements
- ➔ remote signalling of predamaged arresters
- ➔ flexible use of protective devices – depending on the system size
- ➔ minimal impedances without influencing the conductor length
- ➔ certified by the Eisenbahn-Bundesamt
- ➔ technical support and training on site