DEHN protects.

Isolated lightning protection for railway buildings with HVI technology

Project overview

Sector

Railway Infrastructure

Application

External lightning protection of railway station building

Installation of an isolated lightning protection system under consideration of the separation distance

Hardware

High-voltage-resistant insulated down conductor – HVI Conductor

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External lightning protection of station buildings

Railway stations are central hubs for mobility: Every day up to 20 million travellers and visitors pass through the approx. 5,400 German railway stations. The loss or impairment of human life is therefore the greatest risk during thunderstorms. At railway stations, various measures must be taken to combat the risk of fire and prevent dangerous step and touch voltages. At the same time, electrical installations and systems that ensure smooth railway operations (e.g. passenger information systems) must also be reliably protected.
The DB guidelines such as RIL 954.9105 or RIL 819.0808 are based on the lightning protection standard EN 62305. These regulations stipulate comprehensive measures for lightning equipotential bonding for, among other things, railway stations.

Challenge

The main task of the external lightning protection is to intercept lightning and conduct it down the outside of the building to safely discharge it to earth. The aim is to prevent dangerous flashover between parts of the external lightning protection and internal conductive parts in case of a direct lightning strike. The real challenge when planning and implementing the lightning protection system is to conduct the lightning current safely to earth whilst also observing an adequate separation distance and, on top of that, being architecturally appealing. The solution is a high-voltage-resistant, insulated down conductor – the HVI Conductor.

Solution

HVI Lightning Protection provides top protection and a high degree of flexibility during installation. The HVI Conductor is a high-voltage-resistant, insulated down conductor by DEHN which can be installed directly on, e.g. the façade of the building: The lightning current carrying conductor is sheaved in insulation and a semi-conductive coat to prevent uncontrolled sparking and creeping flashover and safely discharge lightning currents to earth. Therefore, with the HVI Conductor, unlike insulated conductors with a metal braided shield, there is no danger of high-energy induced currents. It is not necessary to connect metal/earthed building installations so that they are capable of carrying lightning current. As a result, the coordination and installation of equipotential bonding measures is simple.

Advantages of HVI Lightning Protection

- **Keep separation distances**
  You install it directly next to conductive structural parts or electric lines or pipes – without having to worry about uncontrolled flashover.
- **Easy to mount**
  Modular components and special tools, such as the HVI-Strip, make it safe and easy for you to mount.
- **Save space**
  The variable sealing end range makes you much more flexible when it comes to installation and saves valuable space on the roof. Rigid distance specifications are no longer an issue for you. This simplifies your daily work and reduces the time and money spent on installation and material.
- **Save time**
  Calculating separation distances is quick and easy with the DEHNsupport Toolbox software. It facilitates the numerous calculations required for a professional lightning protection system. Alongside the calculation of separation distances, you will also find modules on the themes risk management, length of air-termination rods, length of earth electrodes and product selection.
- **Integration in the architecture of the building**
  The grey HVI Conductor and the HVI light Conductor can be painted any colour you want.
- **Flexible when retrofitting**
  You can retrofit it on the roof WITHOUT having to adapt the lightning protection system.

Surge Protection
Lightning Protection
Safety Equipment
DEHN protects.

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