

TracFeed[®] VLD

Version 2 - Voltage limiting device



Voltage Limiting Device in accordance with EN 50526-2

In DC railway systems, dangerous touch voltages can arise between the return circuit (running rail) and “earth”.

Therefore, the touch voltage must be limited in accordance with EN 50122-1/EN 50122-3. There are various technical means of achieving this. For this situation, the best option is a voltage limiting device, or VLD. This allows for short-circuiting of the two potentials between the earth and the return circuit in case of increased current and opening under load. This limits any resulting stray current issue.

Functional description

This “Version 2” is the new generation of our already established TracFeed® VLD product. VLD Version 2 continues to monitor the voltage between the return circuit and earth. Thus, if the permissible touch voltage limit defined in EN 50122-1 is exceeded, both potentials are short-circuited. The TracFeed® VLD Version 2 is based upon the TracFeed® DCP3 together with a fast contactor. Both components have been designed in particular for high-speed operation, and achieve the necessary switching times prescribed by EN 50122-1/-3.

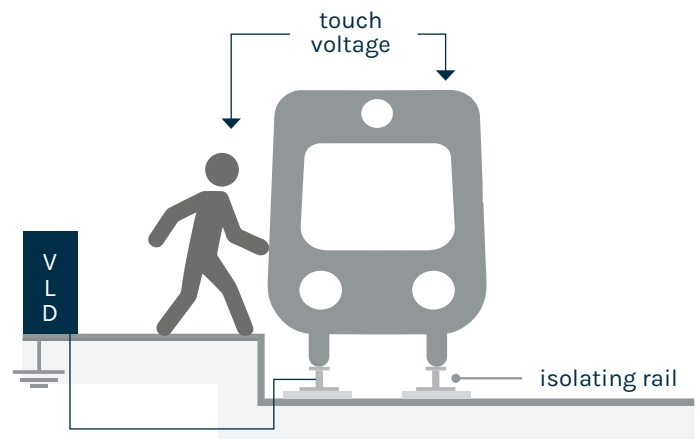
Protection and control with TracFeed® DCP3

The new TracFeed® DCP3 protection and control device monitors the voltage and current as well as controlling the contactor.

The normally closed switched contact trips in response to impermissible voltage increases and time expiration. When an adjustable switch-on current parameter value is exceeded, the TracFeed® VLD is blocked. The controller provides a separate signal that can be used to shut off the corresponding supply section.

All the important settings can be adjusted using parameters. The user-friendly menu also allows the user to adjust the protection against touch voltages in a range below DC 120 V (e.g. in a depot).

The device can be integrated into modern control system concepts using Ethernet protocols such as ModbusTCP and IEC 60870-5-104.



Limiting behavior

Convention distinguishes between operation and failure. This has resulted in the introduction of the terms VLD-O (operation) and VLD-F (failure). VLDs are available for both of these technical designs. Changes in voltage are measured in milliseconds, processed and subjected to time limits in accordance with EN 50122-1.

VLD-O

During normal operation, the operating currents within the track may result in dangerous touch voltages. The VLD allows the use of maximum times at permissible voltages in the system. In cases of a short circuit, the unwanted stray currents are reduced to a minimum by briefly opening the contact

VLD-F

The safety functions are provided for high voltages that occur in case of a failure, such as a torn contact line. In addition to this, the resulting peak voltages trigger a block of the VLD and issue a trip signal; for example, a substation intertrip.

Control voltage failure

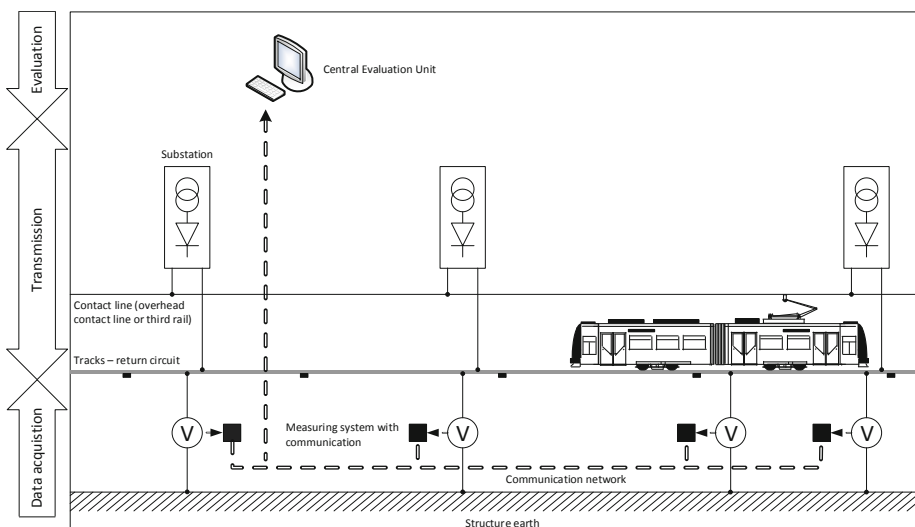
The current is conducted by a main contactor with a normally closed contact. In case of a control voltage failure, the main contactor switches to idle mode, causing the normally closed contact to trip. This method of operation guarantees personal safety at all times.

Technical data

Available on request

Applied product standards

- EN 50526-2:2014-07
- EN 50122-1:2011-01/IEC 62128-1:2015-12-17
- EN 50122-3:2010-10/IEC 62128-1:2013-09-00
- EN 50123-1:2003/IEC61992-1:2006-2
- EN 50123-6:2003/IEC61992-6:2006-2



Stray current monitoring

The device is shipped ready for integration into the TracFeed® SCM stray current monitoring systems. Detection and preparation is already implemented.



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The specifications set out in this document apply to conventional applications. They do not represent performance limits.

This means that divergent specifications may be attained in specific applications. The contractually agreed specifications alone shall apply. We reserve the right to effect technical modifications.

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