

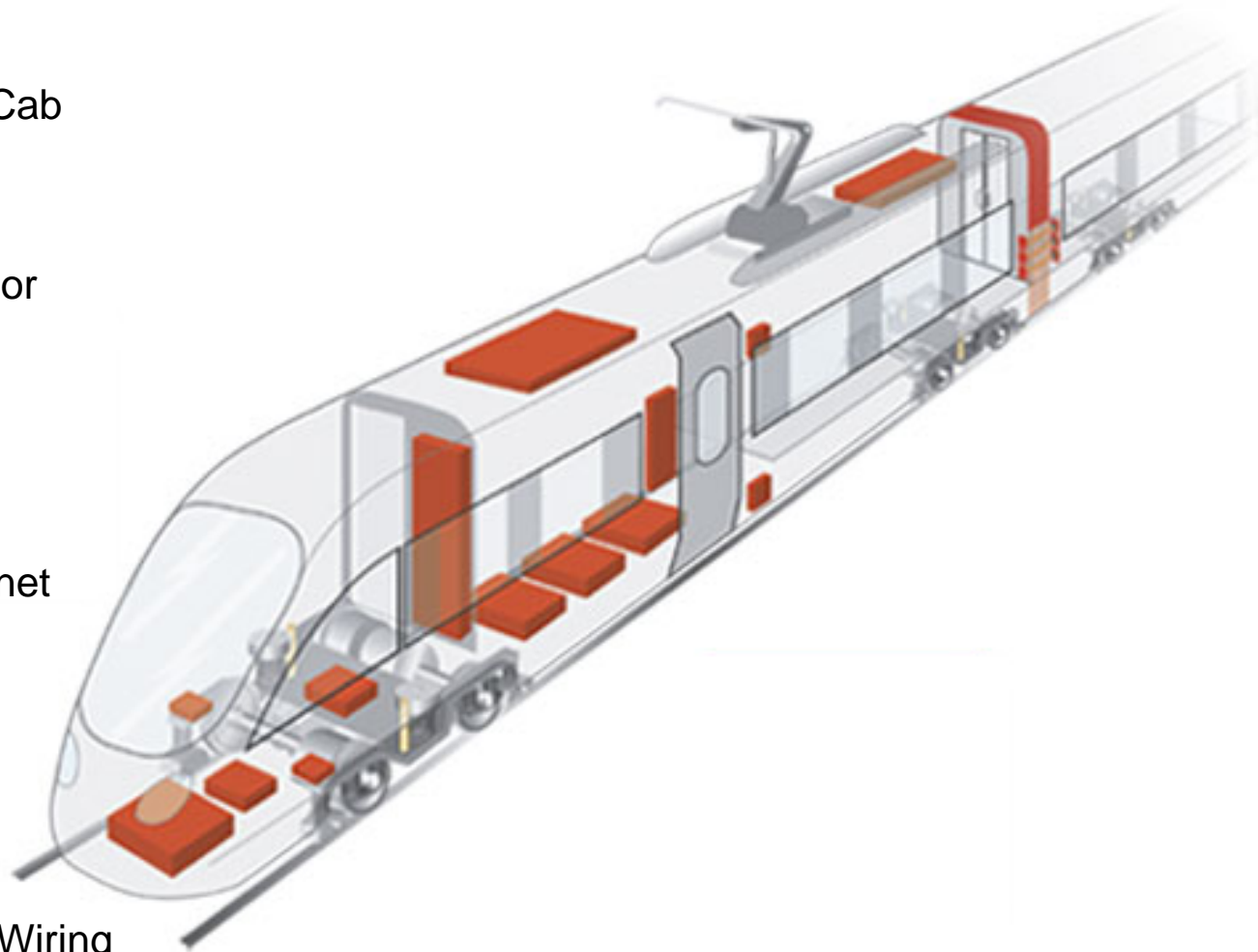
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## Train Applications



# Applications in Trains

- Drivers Cab
- Air Condition Driver Cab
- Brake Control
- Power Supply Motor
- Traction Wheel Sensor
- Main Switch Board
- Converter Container
- Aux. Converter
- Air Condition
- Vehicle Control Cabinet
- Junction Boxes
- Door Control
- Battery-Loading unit
- Light Control
- Power Supply
- Underfloor Cabling / Wiring
- Passenger- Information system

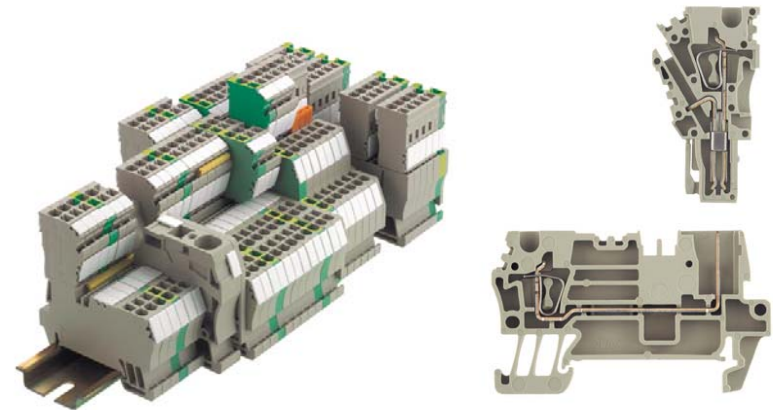


# Drivers Cab

The driver control and watch all important parameter und signals on the drivers desk of the train vehicle.

The monitors and displays have to be very flexible for a fast change during a maintenance.

To plug it, is the best way to be fast.

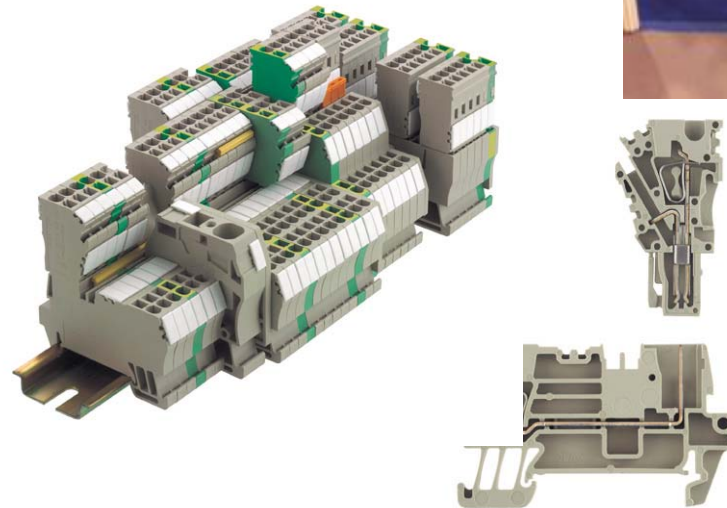


# Drivers Cab

Hundred of signals are flexible connected to the different displays. For the installing of this modular units and displays, the places are very small.



Solution:  
The solid pluggable WeiCoS terminals for a flexible configuration.



# Main Switch Board

The main switch board is in the drivers cab or nearby.  
High reliability, a simple installation and a fast maintenance are very important fire proofed connection without smoke emissions.

Solution:

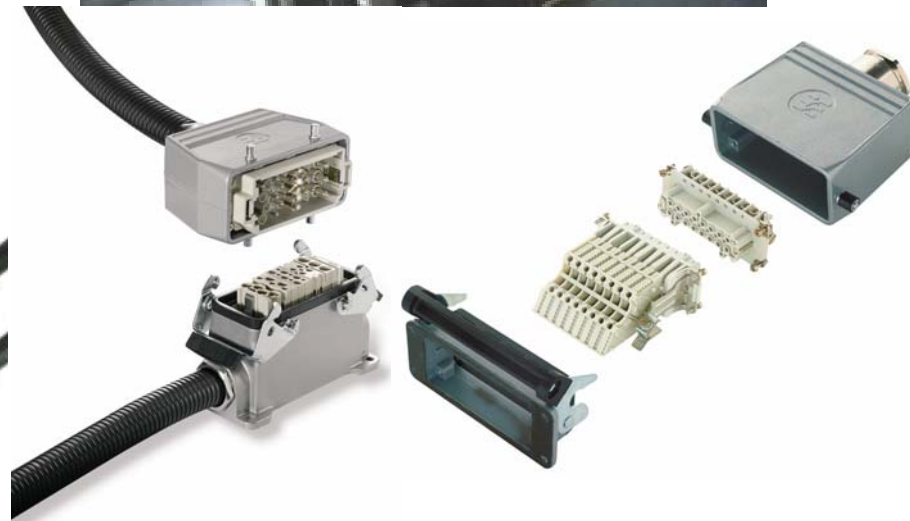
HDC RockClassic, Protection class IP 65

- Easy to install

HEE-, MixMate-, ConCept-inserts made from Macrolon, I2 F2 certified

- DIN 5510 certified

Shrinkabel  
Halogen free  
Marking  
system



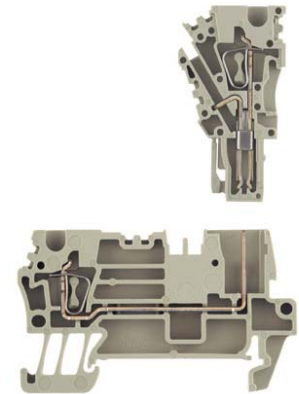
# Air Condition

Large units, mostly installed on the roof.  
Cooling- and ventilations system with  
changeable components.

Flexible, simple and fast modular  
installation und maintenance.  
Have do be very shock and  
vibration safety.



Solution:  
WeiCoS pluggable terminals  
HDC Concept (modular System)



# Braking System

The controlling of the braking system with outside conditions.

Heave contamination with dust and splash water.

The reliability of this safety critical units is very important. Also this safety and protection unit have to be very light.



Solution:

HDC RockStar IP 68 protection class and feathery HEE inserts for reliable, flexible connections.



# Braking System

Inside the vehicle is the brake control with electrical and pneumatically connections

Many standard connectors and a bus connector are used.

Solution:  
HE standard inserts with screening elements further Concept System Bus Modules for the MVB and WTB.



# Lighting System

The main lighting control is mostly inside a switch cabinet in the drivers cab.

To protect the passenger is the first premise. To use consequently fire proofed, certified materials halogen free and without smoke- and toxin emissions are required.

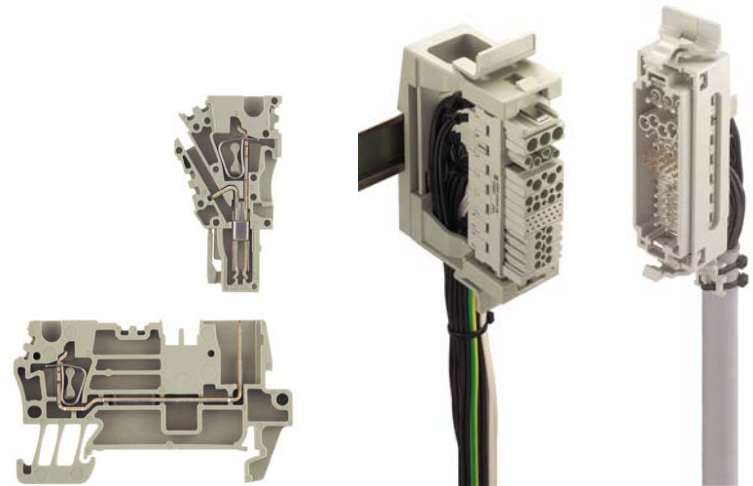
Solution in cabinets:

WeiCos, W- Z- I- series made from Wemid

- Large temperature range  $-50^{\circ}$  -  $+ 120^{\circ}\text{C}$
- I2 F2 certified

RailMate made from Macrolon

- I2 F2 certified



# Lighting System

The different Weidmüller light units in the saloon vehicles or in the cab have the same fire safety conditions.



**Strip 6**  
Carriage Door & Ditch  
Light



**Ring 6**  
Carriage Step  
Light



**Down light**  
Drivers Reading  
Light



**Marker Series**  
Red, White & Blue Carriage  
Marker Lights



**Inspection Light**



**HILED**  
Passenger  
Reading Light

Solution at the units:  
The pluggable PCB connectors for a flexible configuration and to spare space.



# Vehicle Control Cabinet

Hided in side walls or vehicle switch cabinets are the vehicle control units.

To protect the passenger is the first premise. To use consequently fire proofed, certified materials halogen free and without smoke- and toxin emissions.

Solution:

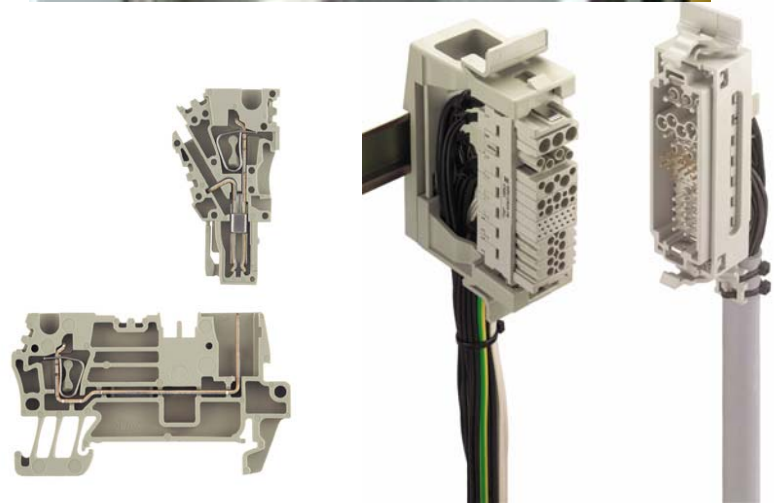
WeiCos, W- Z- I- Series made from Wemid

- Large temperature range  $-50^{\circ}$  -  $+ 120^{\circ}\text{C}$
- I2 F2 certified

RailMate or ConCept Series made from Macrolon

- I2 F2 certified

Shrinkable halogen free marking system



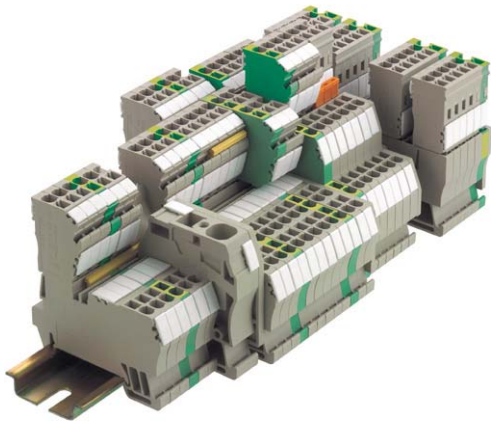
# Vehicle Control Cabinet

Inside the control cabinets are the control signals connected.  
For a fast modular installation are the cabinets connected with different plugs.

Solution:

The solid pluggable WeiCoS terminals for a flexible configuration.

HDC RockStar IP 65. Sealed and impact proofed for HDC inserts to connect control signals.



# Door Control

Beside the door are the door control units to open and close the doors.

To secure safe opening and closing of the door leaves, the signals from the door control unit (slave control) to the main door control have to be reliable.

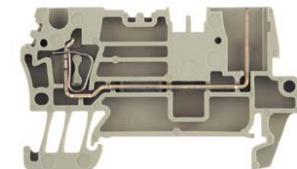
Solution:

WeiCos, W- Z- I- Series made from Wemid

- Large temperature range  $-50^{\circ}$  -  $+ 120^{\circ}\text{C}$
- I2 F2 certified

BLZF- PCB connectors

- Large temperature range  $-50^{\circ}$  -  $+ 120^{\circ}\text{C}$
- I2 F2 certified



# Door Steps

Under the door are the door steps, which move automatically in and out.

This connection must be protected against dust and splash water.

Solution:

HDC RockStar

- IP 68 / IP 69K protection class
- feathery



# Car to Car Connections

The power, the signals and the bus connections have to be supplied during the whole train. High voltage and current supply is necessary between car and car.

High safety and reliability is necessary for all applications.

Solution:

ST 4000 Bolt clamp approved to all necessary rail way standards. Up to 4000V and 415 A the best solution. WFF up to 1000V



# Car to Car Connections

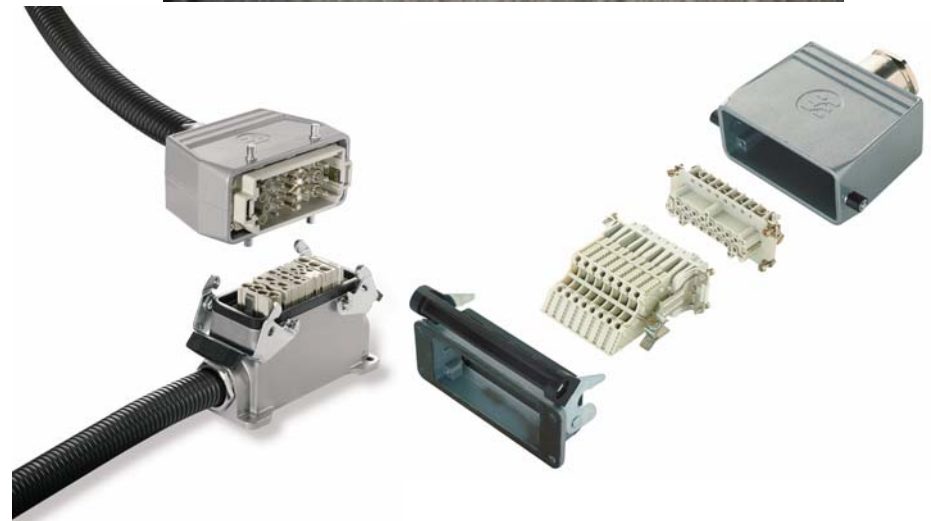
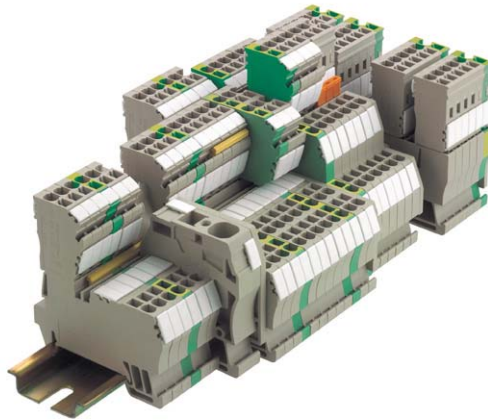
In junction boxes, under the vehicle, are signal- and power cable, which supply signals and power from car to car.

Many plugs and cables have to resist complex atmospheric conditions, as thermal fluctuation between  $-50$  und  $+70^{\circ}\text{C}$ , and dust and splash water.

Solution inside/outside:

The solid pluggable WeiCoS terminals for a flexible configuration.

HDC Rock Star sealed housing for HDC inserts IP 68 / IP69K



# Converter Container, HV-Box, LV-Box

Mostly under the train are the HVB and the LVB, where the high voltage will be transformed to different low voltage categories.

Many plugs and cables have to resist complex atmospheric conditions, as thermal fluctuation between  $-50$  und  $+70^{\circ}\text{C}$ , and dust and splash water.

Solution:

HEE Standard inserts and HDC ConCept with System Bus Moduls the right choice.

Outside the feathery Rock Star system. Impact proofed, EMC proofed, shielded with

HDC Rock Star sealed housing for HDC inserts IP 68 / IP69K



# Auxiliary Converter

Nearby the HVB and the LVB is the auxiliary converter. It must fulfill the same standards and conditions.

Solution:

HEE Standard inserts and HDC ConCept with System Bus Moduls the right choice.

Outside the feathery Rock Star system. Impact proofed, EMC proofed, shielded with

HDC Rock Star sealed housing for HDC inserts IP 68 / IP69K



# Underfloor and Roof Cabling

Cable harnesses are under the floor and in the roof. This cable harness supply the cars and electrical equipment with signals and Power.

Weidmüller offers, with a partner, preassembled cable harnesses within cable glands terminals and plugs to reduce the assembling time in the car.



# Motor Power Supply

A lot of mega watt have to be supplied into the traction system of a modern high speed trains, to accelerate the train to its maximum speed.

Safety and reliability are absolute necessary, because it is a main function of the train. Therefore are strong regulations and guidelines for all products involved in this process.



ST 4000 Bolt clamp approved to all necessary rail way standards. Up to 4000V and 415 A the best solution.

