Edition 3

ON TRACK!

The international magazine of Lütze Transportation GmbH

USB chargers for the passenger area

LÜTZE Technology for Gotthard Base Tunnel

New LÜTZE Rail Technology

LÜTZE sponsors a European youth project

LÜTZE celebrates Company's 60th Anniversary

LÜTZE TRANSPORTATION

EDITORIAL

Udo Lütze
Managing Director
Luetze International Group

We keep the fires burning!

"To cultivate tradition means keeping the embers glowing". This quote from Benjamin Franklin sums it up in a nutshell: Even in the sixtieth year of our company's existence, and around 30 years after the development of the first railway products, we still have a burning desire to advance electronics and railway technology. Today more than ever, because of the systemic and ecological benefits of the railway.

This also explains why LÜTZE was one of the first 25 companies in 2006 to meet the strict IRIS railway standard worldwide. And it almost goes without saying that LÜTZE TRANSPORTATION is among the first companies in 2018, that can also meet the IRIS evolution, the new ISO / TS 22163.

I hope you enjoy reading the latest issue of our magazine ON TRACK - You will see that we are not only standing under steam, but we are ready to roll with the latest railway technology!

With kind regards

Yours
Udo Lütze

INDEX

USB chargers for the passenger area

LÜTZE Technology in Gotthard Base Tunnel

The IRIS rail standard is set to become ISO/TS 22163

LÜTZE sponsors a European youth project

LÜTZE celebrates Company's 60th Anniversary

Module with wide-range input voltage 10

Multi-talents for rail applications 14

Charging Power in the Hamburg Subway 18

Intelligent current control for rail applications 22

IMPRINT

published by
Lütze Transportation GmbH
Bruckwiesenstrasse 17-19, D-71384 Weinstadt
Tel. +49 7151 6053-545, Fax +49 7151 6053-6545
sales.transportation@luetze.de
www.luetze-transportation.de

Editorial/coordination
Lütze Consulting & Services GmbH & Co.KG
Marketing Services, wolfram.hofelich@luetze.de

printed by
Gress Druck GmbH, D-70736 Fellbach

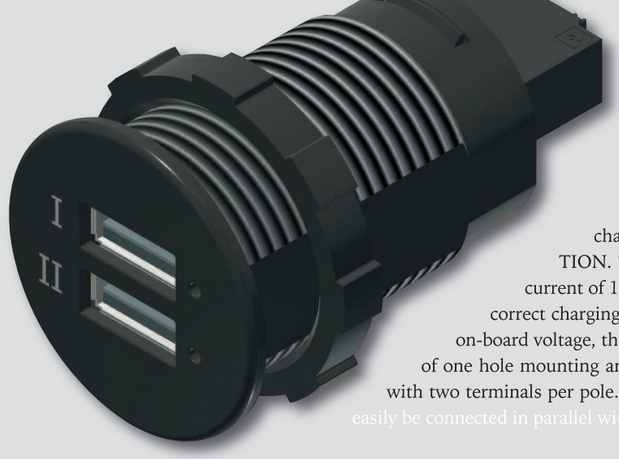
Cover image: HARSCO

Railway approved

USB chargers for the passenger area

Andreas Schindler, LÜTZE TRANSPORTATION

World Innovation



LÜTZE Transportation offers fully railway approved USB chargers with 1.5 A charging current for the passenger area.

Two mobile devices can be charged at the same time by the new USB chargers from LÜTZE TRANSPORTATION. Two USB-A ports provide a charging current of 1.5 A each and green LEDs indicate the correct charging per channel. Operated with DC 24 V on-board voltage, the USB chargers are installed by means of one hole mounting and a pluggable cage clamp connection with two terminals per pole. This means that several chargers can easily be connected in parallel without using terminal blocks.

The USB chargers from LÜTZE TRANSPORTATION are 100 % suitable for rail applications and meet all standards regarding shock, vibration, EMC, fire and smoke standards. Also, both charging ports are protected against short circuits and overloads.
The charger can be operated in a temperature range of -40 °C to +70 °C. LÜTZE Transportation offers the USB charger in an alternative IP 65 variant with a protective cover.

Fig.: Rail equipment compatible USB chargers by LÜTZE TRANSPORTATION for the passenger area including an IP 65 variant with a protective cap.

Image: iStockphoto

LÜTZE Technology for Gotthard Base Tunnel

Andreas Schindler, LÜTZE TRANSPORTATION

As a supply partner to HARSCO RAIL EUROPE, LÜTZE TRANSPORTATION supplies rail-compatible equipment for the most modern maintenance vehicles in the world that are used in the Gotthard railway tunnel.

The company HARSCO Rail Europe GmbH from Düsseldorf, part of the global HARSCO Rail group based in the USA, supplied Schweizer Bundesbahnen (SBB) with 31 state-of-the-art track maintenance vehicles to maintain the Gotthard Base Tunnel. On board are numerous components from the rail equipment specialist LÜTZE TRANSPORTATION. The HARSCO maintenance vehicles are equipped with state-of-the-art control technology and automatic train couplings (coupling, disconnection). All train composition tasks and the brake tests can be carried out from the driver's cab. No employee needs to work outside on or between the vehicles. In addition to improved occupational safety, this also saves time. LÜTZE TRANSPORTATION also supplies rail-compatible components like analogue-analogue converters, analogue limit value switches, various positively-driven relay components, diode modules and a USB charger system. The HARSCO engineers particularly appreciate the compact size and modularity, the wiring benefits and the good price-performance ratio of the LÜTZE components.

Changed requirements made of maintenance vehicles

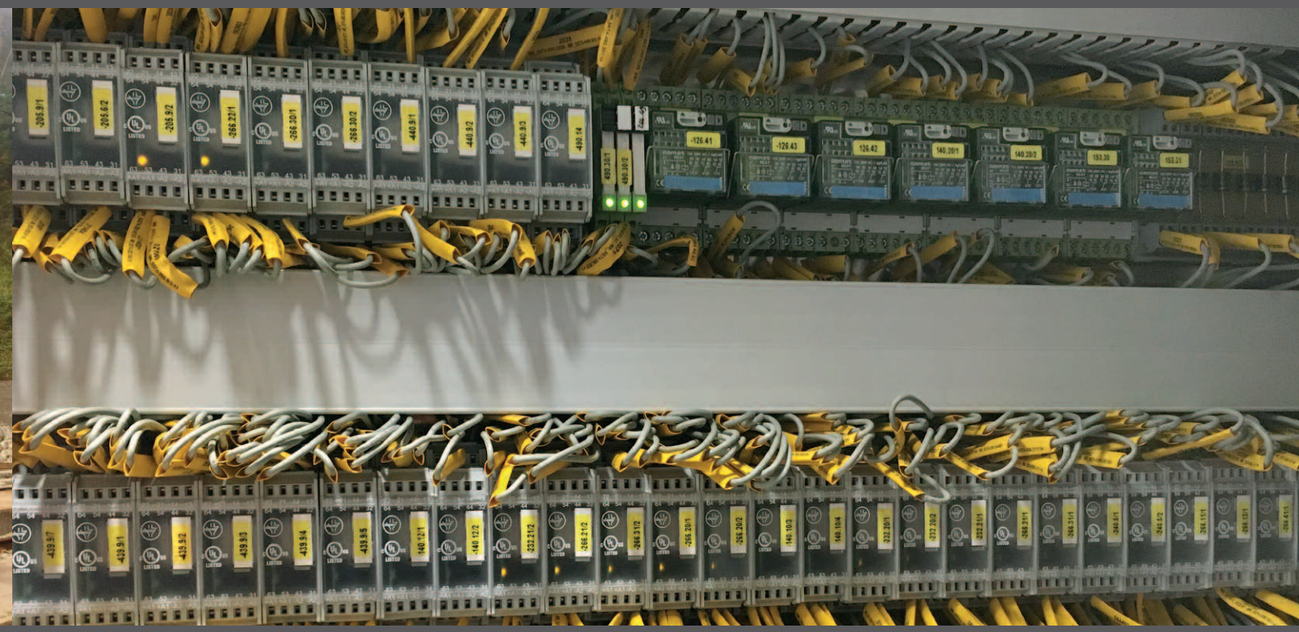
In recent years, the demands made maintenance vehicles have changed dramatically. For instance, the amount of automated functions has increased significantly. Automatic train couplings and remote diagnosis are now standard at HARSCO. Engineer Andreas Göbbels, project manager for maintenance vehicles for the Gotthard Base Tunnel at HARSCO Rail Europe emphasizes: "Ultimately, it is important to harmonize the latest technology into a corresponding train control system whilst also taking all safety standards into account."

Modern HARSCO maintenance vehicles use the so-called dual mode, a particularly sustainable technology, and can be operated both electrically or diesel-electrically, if, for instance, no electricity can be supplied via the overhead line. The responsible engineers are very proud of the fact that the train can be controlled not only from the driver's cab with the installed remote control system, but also from various modules like the elevated work platform using a separate remote control.

The maintenance vehicles can be combined to create special maintenance trains that can be three or four hundred meters long in some cases. All wagons can communicate with each other and are connected with automatic couplings. During operations, it is possible to disconnect the train parts from one another so they can work independently.

HARSCO maintenance vehicles for the Gotthard Base Tunnel

The numbers of the Gotthard Base Tunnel are impressive: 57 kilometers of tunnel and 13 kilometers of open new sections add up to a total of 308 kilometers of tracks, 43 switches and 153 kilometers of overhead



Extreme conditions

lines. But that is not all: 2,600 kilometers fibre optic cable, 3,200 kilometers of copper cable and 7,200 lamps present a huge challenge to the operator SBB with respect to the maintenance of important traffic connections on the European North-South axis.

Under a mountain range that is up to 2,450 meters thick, most work sites in the two driving tubes of the Gotthard Base Tunnel can only be reached for maintenance via the tracks. Lightweight commercial vehicles can only access the driving tubes via horizontal tunnels at two points.

The efficiency of a traffic route with this kind of investment sum can only be ensured if the necessary maintenance work is carried out quickly and at defined low-traffic times so that the approximately 165 trains that drive through the Gotthard Base Tunnel every day are not disrupted. Accordingly, the entire maintenance resources are only available during very short time windows at night at weekends. HARSCO engineer Andreas Göbbels explains: "Due to the utilization of the tunnel, maintenance work can only be carried out in the three night shifts starting on Saturday - this means all processes must run precisely and lots of tasks need to be completed in parallel and multifunctionally at various work sites. We can support the maintenance teams with our highly specialized vehicles.

In total, 31 HARSCO maintenance vehicles were delivered to the SBB. Of this number, 13 are so-called basic vehicles that ensure safe operation in the tunnel. These are supplemented with highly specialized wagons like the module wagons or tank wagons. Each basic vehicle has a crane and an integrated workshop modules as standard. Thought has also been given to the comfort and safety of the personnel. There is an air-conditioned compartment for the maintenance personnel with facilities such as a toilet and small tea kitchen.

A further problem for the maintenance work in the Gotthard Base Tunnel are the very high average temperatures of 35 - 40°C and the air turbulence. To contain these and the connected flying dust particles, and to create a safe work environment, HARSCO Rail has developed the world's first mobile maintenance curtain (MET). This curtain separates one tunnel section almost completely from the rest of the tunnel tubes by placing the gate at the separating point and aligning it with millimeter precision using lasers. The spread arms of the MET ultimately connect with the adjustment rings installed in the tunnel wall.

LÜTZE as a partner to HARSCO Rail

For years, LÜTZE TRANSPORTATION has supplied solutions to Harsco for various projects including rail-compatible analogue-analogue converters, analogue limit value switches, various positively-driven relay components, diode modules and a USB charger system. In the latest case of the HARSCO maintenance vehicles, a current monitoring system for AC 230 V consumers is realized with LÜTZE rail equipment. To this end, an analogue/analogue converter and an analogue limit value switch are combined.
As one of the first manufacturers, LÜTZE TRANSPORTATION also supplies a rail-compatible USB charger that complies with EN 50155. This USB charging system comprises a DC/DC converter and the corresponding USB charger slot. The locomotive drivers can use this system to charge their mobile phones and tablet PCs comfortably and easily in the driver's cab of the maintenance vehicles. Manpower plans and schedules no longer need to be printed out and can be updated in real time.

LÜTZE TRANSPORTATION has maintained a very successful partnership with HARSCO Rail USA since 2000. The LÜTZE products that are currently being delivered in the third generation are customer-specific IP68-protected PLC control systems with integrated field level. They are used by HARSCO USA with a self-developed software for the control system on the entire fleet of track construction and maintenance machines. The engineers of HARSCO USA particularly appreciate the ruggedness and durability of the components. Other benefits of the LÜTZE rail equipment for the HARSCO technicians are undoubtedly the very good diagnosis options for the connected periphery. Also, there are huge benefits connected to the easy replacement of LÜTZE components, e.g. according to the specifications of certain maintenance cycles.

Future projects with LÜTZE TRANSPORTATION are waiting in the wings. HARSCO Rail develops and manufactures a fleet of overhead line vehicles for the Swiss rail network of the SBB.

Image: HARSCO

Railway applications

Module with wide-range input voltage

LÜTZE TRANSPORTATION launches a new relay module with a wide-range input AC/DC 24 to 230 V in housing width of only 6.2 mm.

The new universal relay from LÜTZE TRANSPORTATION reflects the all-in-one philosophy of modern scalable modules: The new relay is suitable for numerous on-board voltages, e.g. DC 24 V, DC 36 V, DC 72 V, DC 96 V, DC 110 V and AC 230 V; but also, for special voltages, such a DC 37.5 V, DC 64 V or AC 120 V. The benefits are obvious: rail manufacturers no longer need to stock a range of different relay types in production. Due to this universality, no confusion is possible regarding the wiring of the input voltage. Therefore, the universal relay from LÜTZE TRANSPORTATION is suitable for global use in all on-board systems.

Permanent operation is possible within a temperature range of -40 °C to +70 °C. The LÜTZE universal relay is 100 % suitable for rail applications and meets all standards regarding shock and vibration, EMC and fire and smoke.

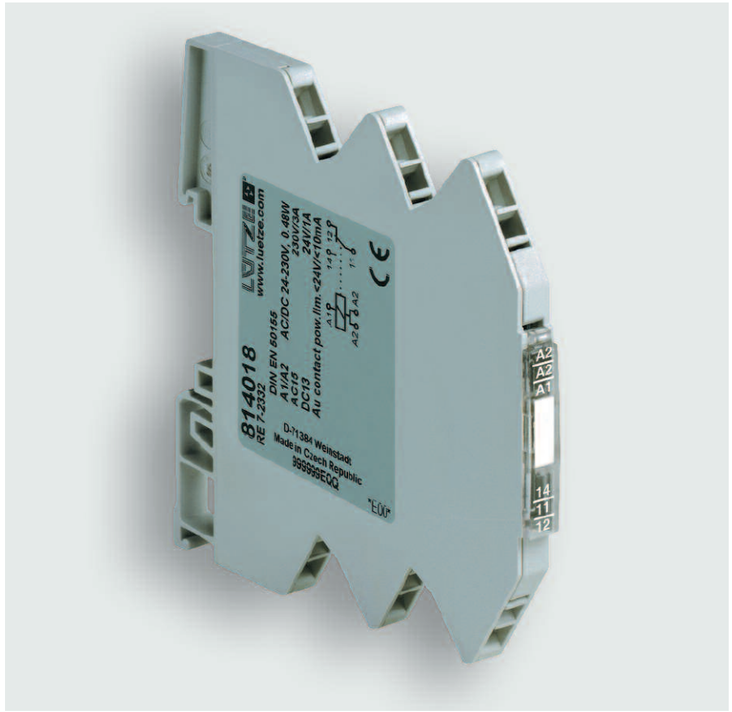


Fig.: Rail equipment compatible, AC/DC 24 V to 230 V universal relay by LÜTZE TRANSPORTATION.

Image: iStockphoto

The IRIS rail standard is set to become

ISO/TS 22163

André Kengerter, LÜTZE TRANSPORTATION

Rail vehicles place particularly high demands on the quality of the materials and components used. In contrast to consumer and capital goods, they are developed and produced for an extremely long period of deployment. Usually, the vehicles are designed to complete a service life of at least 30 years. As a result, special requirements with respect to corporate processes in the rail vehicle industry are derived, which are reflected in the respective management system. In addition to a high product quality, steps also need to be taken to ensure long and reliable functionality, and also the long-term availability of spare parts and repair options. Consequently, manufacturers of electronic components for rail vehicles in particular repeatedly face obsolescence problems as a result of fast-moving technologies.

In turn, the complexity of modern rail vehicles requires that all companies involved in manufacturing the end product, have mature and stable project management. This is the only way to ensure the punctual completion of rail vehicles that comprise thousands of individual parts, some of which have been newly developed. In order to be able to address these and other requirements, the European Association of the Rail Industry 'Union des Industries Ferroviaires Européennes - (UNIFE)' and the International Railway Industry Standard (IRIS), joined forces in 2006 to create an internationally valid specification covering the quality management systems of rail manufacturers and their suppliers. The standard is based on the cross-industry norm for quality management systems ISO 9001, and expands it to include specific requirements of the rail industry. Since it was published in March 2006, the IRIS standard has undergone regular and continuous modification.

One milestone in the development was the step taken in May 2017 to turn the private sector IRIS standard into an international technical specification ISO/TS 22163. The new ISO/TS 22163 comprises all the requirements of the current ISO 9001:2015. These regulations are supplemented by the specifications of the IRIS Revision 02.1 + Addendum 2015. An important feature of this new standard is the switchover to the new classification structure for management systems (High Level Structure). This structure was expanded to include various additional rail industry requirements for ISO/TS 22163. A new addition is a maturity model for management systems based on a Bronze-Silver-Gold assessment.

It remains to be seen whether or not the newly created technical specification will become an internationally valid ISO norm, or whether, like the automobile specification ISO/TS 16949, the ISO/TS 22163 will return to being a private sector addition to the ISO 9001 in a few years. The continuous development of ISO 9001 has created a process and risk oriented approach that already covers a lot of requirements for management systems in various sectors. A sector-specific modification of the additional requirements of the rail vehicle industry in ISO/TS 22163, taking the specific needs of smaller companies into account, would be welcomed.

As an IRIS certified company from the very beginning, LÜTZE TRANSPORTATION successfully transitioned from the IRIS to the ISO/TS 22163 standard in May 2018 during a certification process, and will be monitoring developments closely. The specified processes will be continuously developed in line with the norm, and appropriately aligned to our customers and to the long-term product strategy.

Fig.: For highest quality requirement, the new standard ISO/TS 22163

Bildnachweis: iStockphoto

LÜTZE sponsors

a European youth project

LÜTZE supports an exchange between a local football club and a British youth football team.

Thanks to the financial support from the owner family of FLUETZE INTERNATIONAL GROUP, it was possible to send 27 players from the Weinstadt U15 team along with a training team to Wales for 10 days of sport. In addition to training sessions, sightseeing and a great time with our hosts in Port Talbot near Swansea, South Wales, one absolute highlight was a game against the Welsh U15 national team.

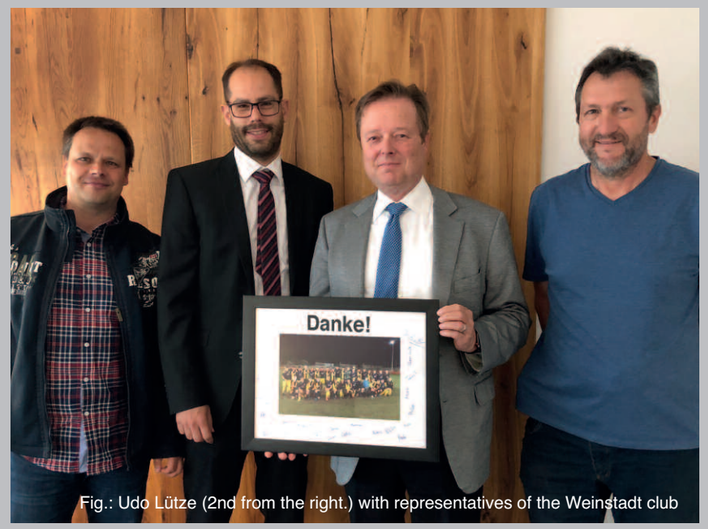


Fig.: Udo Lütze (2nd from the right.) with representatives of the Weinstadt club

This visit also offered an opportunity to consolidate the European idea: “In a time in when this idea is increasingly subject to scepticism, it is particularly important to support the international youth exchange by taking specific action," says Udo Lütze, owner of the LUETZE INTERNATIONAL GROUP.

Sponsoring and supporting youth work is highly important to LÜTZE. For instance, LÜTZE is cooperating in education partnerships with local schools, investing in education centres, and sponsoring the youth work done by local sports clubs.

Multi-talents

for rail applications

LÜTZE TRANSPORTATION launches two new DC/DC converters with 15 and 36 Watt plus wide range voltage input, whose output voltage can be set between 5, 12, 15 and 24 V using the DIP switches.

Instead of having to stock a large number of DC/DC converters with a fixed output voltage in the production, railway companies now only need the new LÜTZE converter. LÜTZE converters have a wide range voltage input of DC 24 V to 110 V making them suitable for different rail onboard supplies in diesel and also electrical vehicles. A status output indicates short circuit or over temperature. If an error is detected, the output voltage is switched off until the power supply is reconnected.

These two very compact converters adapt to the space available in control cabinets and can be simply clipped onto the hat profile.

These two new DC/DC converters by LÜTZE TRANSPORTATION can also be used for easy activation of large load capacities. All potentials are galvanically insulated from each other. Reinforced insulation ensures a high insulation resistance.

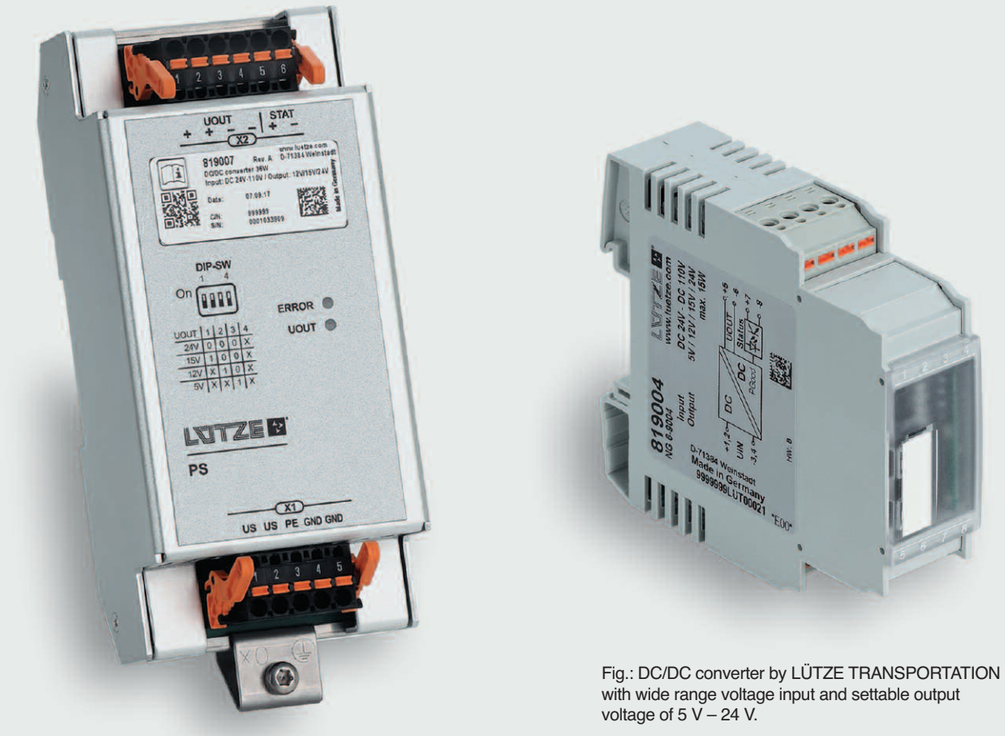
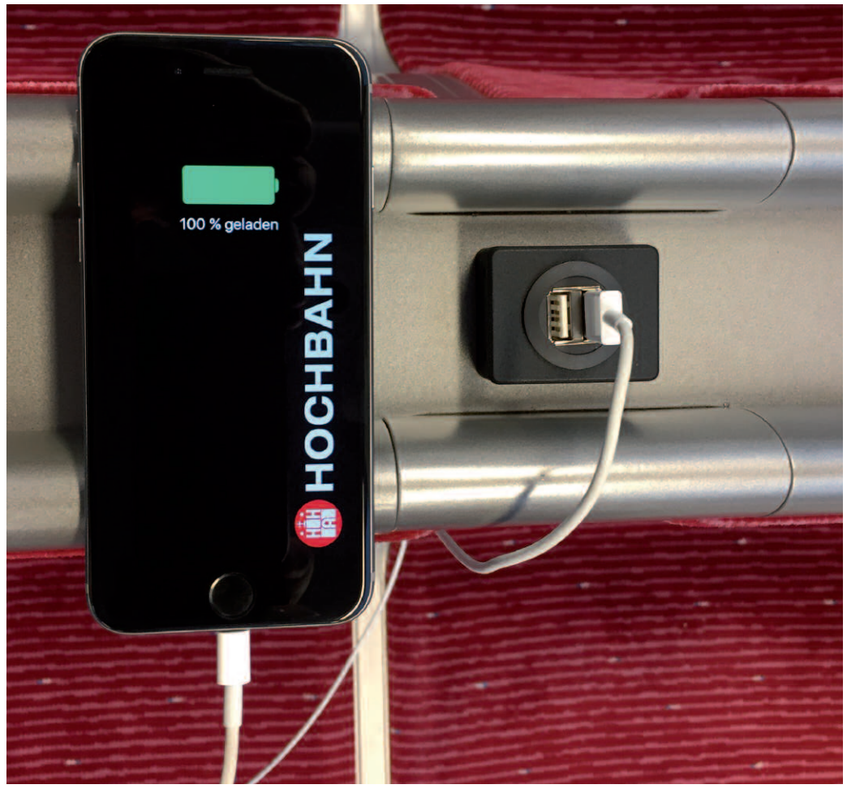


Fig.: DC/DC converter by LÜTZE TRANSPORTATION with wide range voltage input and settable output voltage of 5 V – 24 V.

Plug and Play

Charging Power in the Hamburg Subway



Several DT5 rail vehicles belonging to Hamburger Hochbahn AG, the rail transportation company in Hamburg, Germany, are already underway with full USB power. The USB charging ports found in every rail vehicle ensure that the passengers can conveniently charge their smartphones or tablets while on board.

Andreas Schindler, LÜTZE TRANSPORTATION

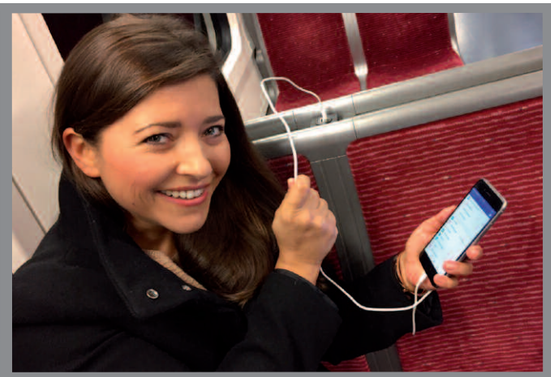
Using smartphones or tablets on public transportation is second nature for many passengers. Passengers enjoy surfing the web, writing emails and using messenger services, or simply playing games online. If the battery were to run out, the convenient access to a charging port provides a useful service to passengers.

If you are using your mobile device while in the Hamburg subway, you no longer have to worry about the battery life of your device. Especially, this is the case in the new Bombardier DT5 rail vehicles. Hamburger Hochbahn AG is having them fitted with USB charging ports: eight per rail car for a total of 24 per vehicle. Each one is conveniently located between the seats; you just need to bring your own charging cable.

Several newly delivered vehicles are already equipped with these charging ports, and Bombardier is sending a new DT5 to the Hamburg rail network every 2 to 3 weeks. If you happen to board a DT5 without USB charging ports, do not worry as the Hamburg subway will be installing charging ports in all of its current vehicles as well.

Specially Developed for the Railway

Plug and Play



USB charger system

- For tablets and mobile phones
- Specifically for use in the passenger vehicles and in driver's cab
- 2 outputs each with 2.1 A charging current
- Outputs protected against short circuit and overload
- Galvanic isolation between input and output
- Wide input range of DC 24 V – 110 V

Specially developed for use on trains.

The passengers will only see a double USB port at each charging station, which is supplied via a two-channel DC/DC converter. This device, specifically developed for use on rail vehicles, has a wide input range of DC 24 – 110 V. This means the solution from Lütze Transportation GmbH can be used worldwide in any rail vehicle – without having to flip a single switch; whether the electricity is 110 volts in subways or ICEs, 24 volts in diesel locomotives or DB-Regio doubledecker vehicles, 72 volts in French vehicles or 36 volts in Swiss local trains. The converter also meets the specifications of the USB-IF organization.

Hot topic: fire safety

There is another important point: the converter and USB ports are tested according to all railway standards and meet all current fire safety requirements. The latter are more stringent in the passenger area than in the driver's cab.

Coming soon to Oslo

Speaking of the driver's cab, the USB ports are also installed there. Bombardier first started to equip its DT5 with ports in the driver's cab as drivers began using tablets to replace printed documents. The positive results led to the decision to offer USB connections in the passenger areas of the train as well. And Hamburg is just the start. At present the Metro in Oslo is planning to retrofit its passenger vehicles with this system. This charging system is also found in the driver's cabs of other rail operators. For example, DB Regio, a German commuter train company, and some local Swiss commuter rail operators are equipping their train drivers with this permanent charging solution.

Image: Hamburger Hochbahn AG

LÜTZE celebrates Company's 60th Anniversary

Udo Lütze with his wife, Susan Lütze and Gitta Lütze (from left to right)

Efficiency in automation for 60 years – with countless pioneering achievements and patents, LÜTZE is now one of the world's leading companies for efficient automation solutions.

Festive setting: On January 26, 2018, LÜTZE celebrated with a gala the company anniversary in the Manufacture B26 in Schwäbisch Gmünd, Germany.

Friedrich Lütze (1923–2014) founded Lütze GmbH in Weinstadt near Stuttgart in 1958. Since then, electronic and electrotechnical components, system solutions for automation and high tech components for rail industry, have been designed and produced there. Friedrich Lütze GmbH in Weinstadt is a member of the globally-active LUETZE INTERNATIONAL GROUP and plays a central role within the LÜTZE Group with its distribution network, production facilities and research and development department.

With ground-breaking innovations and international patents, the company, still young at the time, was already developing a presence in the market. LÜTZE was one of the first companies to market cables for drag chains in the 1960s. The portfolio of industrial cables has been continuously developed and now covers 95% of all industrial manufacturing applications. Cable assemblies and connection technologies complete the cable specialist's product range.

Research and development have been and will continue to be a top priority for LÜTZE.

With the launch of the LSC system for control cabinet wiring in 1972, control cabinet manufacturers, could for the first time save up to 30% more space than the conventional assembly panel layout. Since then, LÜTZE's advanced AirSTREAM system has set new standards in energy efficiency, space utilization and the service life of control cabinet components.

With its range of products from the area of Control, LÜTZE covers the area of electronic overload and short circuit protection, as well as the entire spectrum of industrial power supplies. The LOCC-Box and LCOS CC systems guarantee intelligent and reliable power monitoring and all the possibilities of integration into the latest Industry 4.0 applications.

The company is constantly growing. LÜTZE operates a global network of distribution and production companies, and is represented in all of the world's major markets. Railway technology is another important mainstay. Lütze Transportation GmbH is among the world's leading suppliers in this sector. In 2010, LÜTZE was one of the first 20 companies to comply with the demanding railroad standard IRIS 02. Since 2018 Lütze Transportation GmbH has been certified according to ISO / TS 22163

The family firm is under the second-generation leadership of Udo Lütze.

Intelligent current control for rail applications

LÜTZE TRANSPORTATION presents the LOCC-Box Rail, an intelligent current monitoring device for 12 V and 24 V circuits.

The single-channel LOCC-Box Rail (Lütze Overload Current Control) monitors and switches off only the affected circuits in the event of a fault. Unaffected circuits can continue to operate independently without any interference. In addition to device and circuit protection functions, LOCC-Box can also perform energy management tasks. A digital input allows for remote on/off and reset of the device and is especially suitable for installations in hard to access areas such as under the floor or on the roof. Extensive range of accessories such as supply sets and jumper combs help with cabling optimization. The current range of the LOCC-Box Rail can be set in increments of 1 A between DC 1 A and DC 10 A. LOCC-Box Rail has a modular design and housing width of only 8.1 mm, compared to 17.5 mm of standard circuit breakers, adapts even for use in constricted control cabinets.

Fig.: Intelligent rail application current control with the LÜTZE LOCC-Box Rail.

Five different characteristics can be set by a rotary switch found on the front of the housing: fast, medium, slow-1, -2 and -3. Green and red LED indicate different operating functions, e.g. 90 % or 100 % load, or fault. Operating temperature range is -40 °C to +70 °C.

The LOCC-Box Rail by LÜTZE TRANSPORTATION is 100 % suitable for rail applications and meets all standards regarding shock and vibration, EMC and fire and smoke. LOCC-Box Net Rail with various field bus gateways for Ethernet TRDP or CANopen is coming soon.

Image: iStockphoto

We are on Track!

Electronic control for rail vehicles

Germany
Lütze Transportation GmbH
Postfach 12 24 (PLZ 71366)
Bruckwiesenstraße 17-19
D-71384 Weinstadt
Tel.: +49 71 51 6053-545
sales.transportation@luetze.de

Austria
Lütze ETE Ges.m.b.H.
Tel.: +43 1 2575252-0

Switzerland
Lütze AG
Tel.: +41 55 45023-23

USA
Lutze Inc.
Tel.: +1 704 504-0222

United Kingdom
Lutze Ltd.
Tel.: +44 1827 31333-0

France
Lutze SASU
Tel.: +33 1 341877-00

Spain
Lutze S.L.
Tel.: +34 93 2857480

China
Luetze Trading (Shanghai) Co. Ltd.
Tel.: +86 21 32580670

LÜTZE TRANSPORTATION