

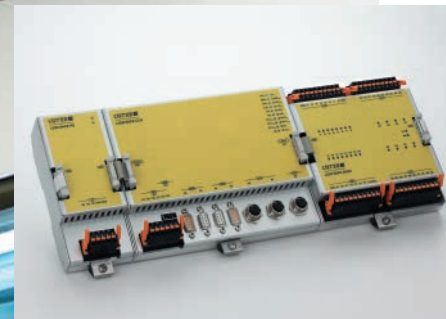


■ Transportation Solutions

Product Overview

Welcome to LÜTZE

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Getting on track with railway competence from LÜTZE TRANSPORTATION!

Temperature variations, vibrations, shocks and strong electrical fields are just some of the extremes affecting the electronic assemblies in rail vehicles - continually, over decades. Therefore, LÜTZE TRANSPORTATION's rail components are particularly long-lasting and reliable.

The development of such components demands comprehensive knowledge of the conditions of use and, in particular, a great deal of experience in the use of electronics on rolling stock. For over 40 years LÜTZE has been delivering products for this extremely challenging field.

Numerous locomotives, metros, and light rail vehicles around the world are able to operate safely thanks to LÜTZE know-how. The product portfolio contains high quality high-tech control and electronics modules, tried-and-trusted interface components and a comprehensive range of visual and acoustic signal encoders.

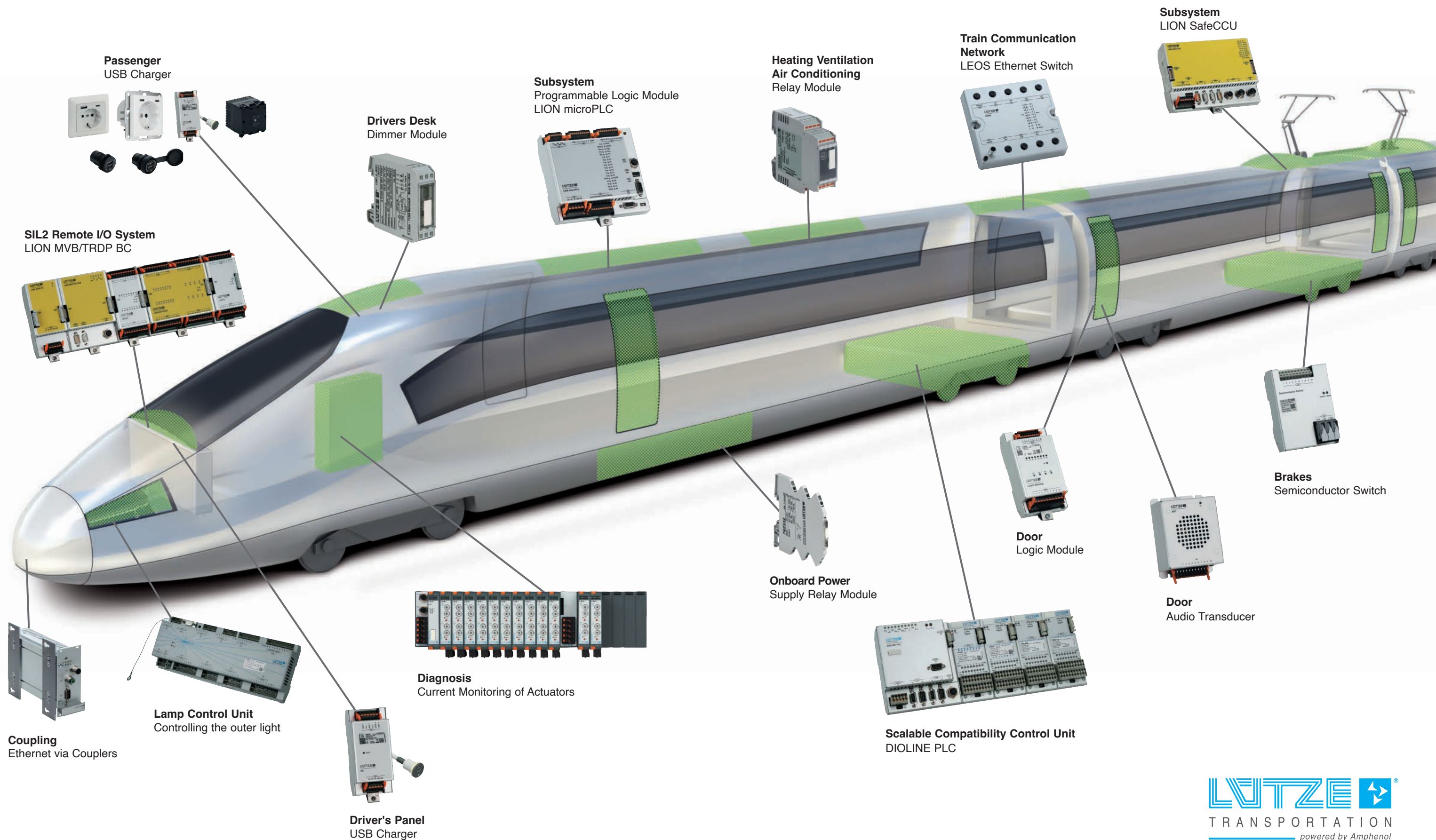
Customer-specific projects play a key role in the field of rail systems. For this reason, the LÜTZE research and development department possesses a very high level of consultation and development competence to solve even the most challenging problems.

In 2007, LÜTZE was among the world's first companies to obtain an IRIS certificate. Since that time the management system is improved permanently according to the evolution of the IRIS standard. In 2024, the IRIS Rev.04 standard was successfully met.

We are on Track



Products and Solutions for Rail Vehicles





Control Technology

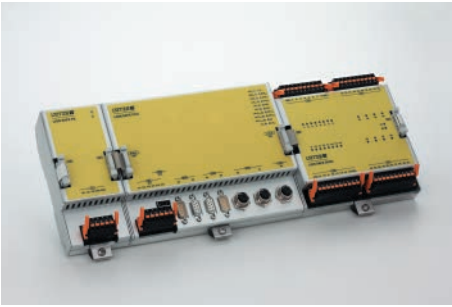
Control and diagnostic systems play a key role in modern rail vehicles. Customisable platform concepts are required to ensure that vehicles are designed and manufactured efficiently in the face of control technology's ever increasing requirements.

Control technology components from LÜTZE TRANSPORTATION are flexible to use and consistently accommodate this trend. So intelligent, special purpose solutions such as LÜTZE lamp control units are available as well as whole control technology systems to EN 50155, EN 50126,

EN 50657 and EN 50129, with perfectly coordinated individual components.

An example of this is the LION system, which comprises not just the vehicle control system but also the I/O level for all the usual signal voltages found in the railway sector.

Vehicle Control Unit



LION SAFE CCU

- Safety PLC for applications up to performance level SIL2
- Safe- and non-safe functions in one system. The program code can be edited and configured reactionless within the control.
- Communication via MVB (Slave), CANopen, CAN, Ethernet or TRDP (Dual Homing)
- Safe communication via MVB and TRDP with the SDTv2 safety protocol
- EN 50126, EN 50716, EN 50129 and EN 50155 certified



DIOLINE PLC

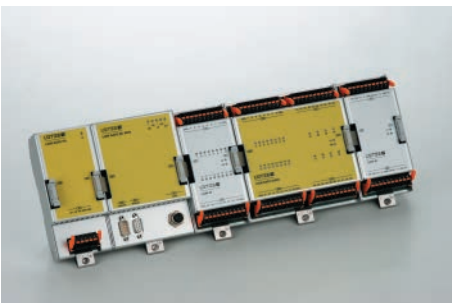
- Flexible compact control unit for use in rail vehicles
- Works as subsystem controller or as a powerful gateway linking various vehicle-specific bus signals.
- Up to 4 bus interfaces, flexibly configurable as Ethernet, MVB (Slave), CANopen or CANJ1939 interfaces. Supports the Ethernet protocols TCP/UDP and TRDP
- Optional RS485 extension
- L-Bus interface for local connection of I/O modules of the DIOLINE family
- IEC 61131-3 development environment for applications according to EN 50657



LION MicroPLC

- Compact, cost effective logic module for use on rail vehicles
- For simple decentralized automation tasks in subsystems
- Easy programming with free PLC project planning tool
- Ethernet, USB, RS485/422/232, CAN (can be switched)
- 16 digital inputs, 2 analogue inputs, 8 digital outputs, 1 analogue output
- I/O configuration can be customised

Remote I/O Modules



LION I/O System

- Scalable safety thanks to the combination of safe and non-safe I/O channels
- Secure field buses: Ethernet TRDP or MVB with SDTV2 Safety Layer
- Wide range of I/O digital and analogue I/O interfaces
- Potential groups with small granularity
- High-performance rear wall bus for high data rates and detailed diagnosis data from the field
- For applications up to performance category SIL2
- EN 50126, EN 50716, EN 50129 and EN 50155 certified



LEOS Unmanaged Ethernet Switch

- 8 Port Switch with 10/100 Mbit/s
- Wide input range of DC 24 V ... 110 V
- Cost-effective for basic applications
- Space-saving design
- Sturdy thanks to completely closed diecasted zinc housing



Train Line Modem

- Gigabit Ethernet via existing cable and coupling
- Data rate up to 1 GBit/s (UDP)
- Advanced Encryption Standard (AES)
- Existing cabling being used for data transmission
- Wide voltage input of DC 24 V to 110 V or as PoE
- TLM configuration tool for settings and diagnostics

Railway Technology Competence



LÜTZE has been developing and manufacturing electrical components for rail vehicles for over 40 years. Our extensive product range of standard components carries out many automation tasks in the most diverse vehicle applications.

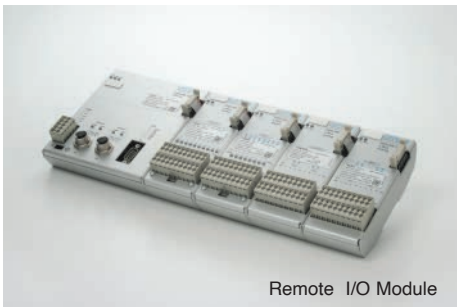
Are you still looking for the appropriate product adapted to suit your specific application?

Get in touch with us. Our developers help you to find the best solution for your product, including the specification and design for the application on the vehicle, regardless of whether you need components for your control technology, interface components or optical and acoustic signals.



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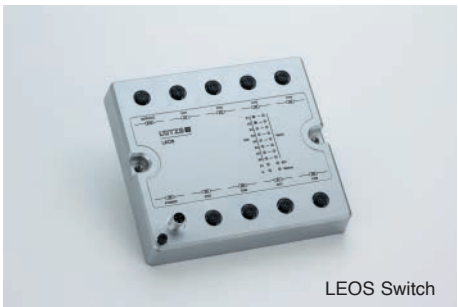
The Vectron series by the locomotive manufacturer Siemens is a flexible locomotive platform that can be adapted to various customer requirements. The modular and configurable components from LÜTZE TRANSPORTATION help to minimise the design effort for various configurations. Depending on the variant, different products from the LÜTZE TRANSPORTATION portfolio ensure efficient adjustment of the platform to the customers' needs.



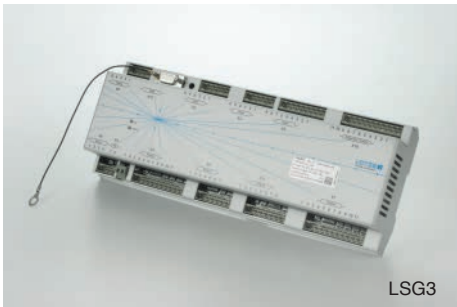
Remote I/O Module



Compact Control Unit



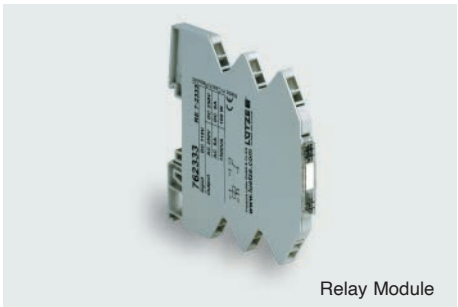
LEOS Switch



LSG3



Audio Transducer for fixed frequencies



Relay Module



Interface

Streamlining of vehicle design and wiring as well as optimal use of installation space: these are the tasks of LÜTZE TRANSPORTATION interface products.

The large number of different electrical components on rail vehicles means that amplification, adjustment and suppression are often required between the control technology and actuators.

Innovative, devices developed specifically for vehicle technology combine functions that previously required a whole series of

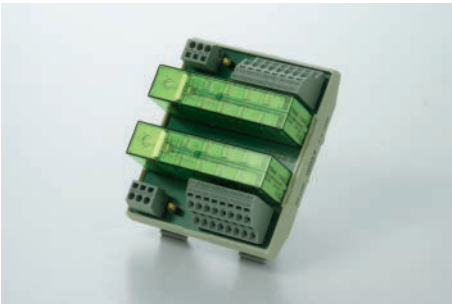
individual devices. Thus the space requirement is minimised and the design and wiring are simplified. A wide range of standard products covers numerous application areas and they are perfectly complemented by customised products, which we develop to your specifications.

Relays



Relay Modules

- Available with different contact materials for switching currents of 10 μ A to 10 A
- Spring-loaded terminal connection, optionally with front wiring and a bridging option
- Different models for optimum use of the installation space
- Available for all other onboard voltages or with wide-range voltage input



Relay Modules with Positive-Action Contacts

- The relays meet the requirements of the IEC 61810-3 application type A
- Available with 2 to 8 contact sets
- Spring-loaded terminal connection
- Different models for optimum use of the installation space
- Optionally, also available with gas-filled relays for absolute contact reliability
- Available for all other onboard voltages



Safety Relay Modules

- Suitable to be used in safety applications up to SIL2
- For contact extension and increase of switching capacity in safety control systems
- 2 NC / 4 NO positive-action contacts acc to. IEC 61810-3 application type A
- Available for all common onboard voltages

Function Relays



Programmable Timing Relay

- More than 30 time functions can be configured using free software
- Available with a relay output, optionally with positively driven contacts, and semi-conductor outputs for DC 24 V and DC 110 V
- A wide range voltage supply and wide range voltage control permit operation on all standard on-board voltages between 24 V and 110 V DC

Semi-Conductor Switches



Semi-Conductor Switch

- For switching currents up to DC 60 A and switching voltages up to DC 110 V
- Long service life thanks to wear-free switching elements
- Optional diagnostic output for short-circuit, overload and wire break simplify troubleshooting and increase availability
- Different models for optimum use of the installation space

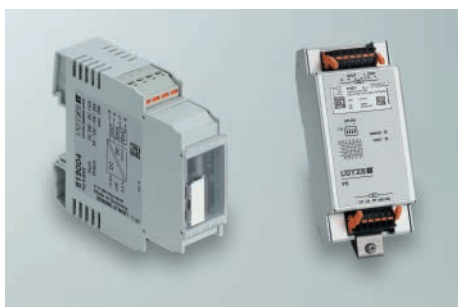
Transducers



LCON Rail Infinity

- Analog input up to AC/DC 300 V and AC/DC 10 A
- Temperature input for PT100, PT1000, 2-, 3-, 4-conductor, potentiometer and thermo couples
- 1 analog output
- 2 semiconductor threshold switches DC 110 V / 1.5 A potential-free
- Parameterizable by means of free software
- Wide input range of DC 24 V – 110 V

Power Supplies



DC/DC Converter 15 W / 36 W

- Wide input range of DC 24 V – 110 V
- Adjustable output voltage DC 5 V / DC 12 V / DC 15 V / DC 24 V
- High output capacity > 5 mF
- Short-circuit and overload protection
- Reinforced insulation
- DIN rail mounting



USB Charging Solutions

- 230 V sockets (Type E or F) with integrated charging ports USB-A and/or USB-C as well as USB-C 40 W PD
- DC 24 V charging ports with 2 x USB-A
- DC 24 – 110 V wide range charging system with suitable passive charging cables

Logic Modules



Logic Modules with GreenPAK™ Technology

- Realisation of customized logic operations within a GreenPAK™ configurable mixed-Signal device using its programmable digital logic resources.
- 8 digital, potential-free wide-range inputs with individual selectable threshold (9 V / 33 V) for nominal voltage DC 24-110 V
- 4 digital, potential-free wide-range outputs with short-circuit protection for nominal voltage up to DC 110 V. Maximum output current: 2 A
- Wide range supply voltage DC 24-110 V
- Status-LED for each input and output

Load Monitoring



LOCC-Box Rail

- Intelligent load monitoring system for DC 24 V onboard networks
- Adjustable current range: DC 1A – 10A
- Adjustable characteristic (fast-acting - super slow)
- Digital set / reset input
- Does not need to be installed in easily accessible place
- Status output



LUNA

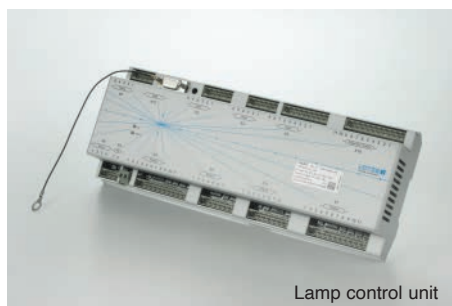
- Intelligent control system for 2-pole switching and load monitoring of 24 V actuators
- Adjustable current ranges up to 10 A
- Adjustable characteristic (fast-acting – super slow)
- 2 channels per module
- Connection to the vehicle control unit via Ethernet TRDP
- Permanent transmission of diagnostic data
- Compact module with 6 or 11 slots



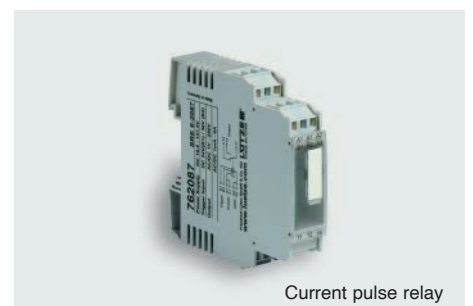
By the year 2020, the Leipzig Traffic Authority will have bought 41 new, modern and highly accessible vehicles of the type Solaris Tramino from the company Solaris Bus & Coach. LÜTZE TRANSPORTATION will also be equipping these vehicles with various components for movement and comfort. For instance, there are various semiconductor modules with load currents up to 20 A and also a number of different mechanical relays and multifunctional relays installed.



DC semiconductor relay module 20 A



Lamp control unit



Current pulse relay



Relay module with positive-action contacts



Timing relay with positive-action contacts



DC semiconductor relay module up to 20 kHz



Indication

Acoustic warning:

We have various solutions available to you for a range of applications, so you can hit the right note in any situation.

We provide maintenance-free & durable solutions, both for indoors and outdoors.

Customer-specific solutions are available on request.

Acoustic Transducer for Indoors



Audio Signal Transducer

- Beside simple signal tones it is often necessary to playback acoustical warnings in a form of speech and melodies. This Audio Signal Transducer is able to play such audio files in a total length of up to 15 minutes
- The tones are selected using 6 digital wide range inputs. The prioritization of the single audio files is possible
- The volume can be adjusted using the integrated potentiometer
- The following audio file formats are supported: *.WAV, *.mp3
- An additional version for wall mounting as well as a version with external speaker is available too
- Programmable with a free software



Audio Signal Transducer with TRDP

- Configuration (IP + audio) via web server
- Audio playback is controlled via TRDP message data telegrams or digital inputs
- Up to 256 audio files possible, limited to ca. 15MB
- Copy and paste of configurations possible via webserver
- Volume control
- Predefined presets
- default (100%), configured volume or TRDP sent volume possible



Universal Buzzer

- This Universal Buzzer module is suitable for acoustic signalling in the most diverse applications. Different tones can be parameterized via the programming interface. This can be implemented by LÜTZE or independently via a free software.
- The Buzzer Module can be operated with a voltage between DC 24 V and 110 V.
- There are different operating modes available: continuous operation, interval operation or change-over mode.
- The Buzzer Module is available in 3 different versions: one for wall mounting and one for back wall mounting as well as for DIN rail mounting.

Acoustic Transducer for Outdoors



External Audio Signal Transducer

- Powerful electronic sound generator for outer warning
- Sound pressure up to 122 dB(A) @ 1m distance – depending on used sound and settings
- Controlled via 4 digital inputs (binary codable) with a maximum of 14 tones
- Various connection options: round plug, plug housing, 90° C angle plug - further connection options on request
- Day & night control input for reducing the sound pressure level at night
- Simple programming via configuration tool with various setting options

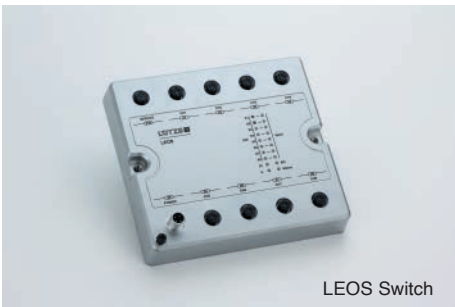
Indication



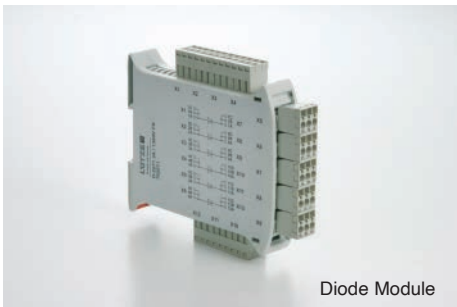
Stadler supplies Flirt series railcar trains for the private operator MTR Express in Sweden. The vehicles are used on the first Swedish Intercity line between Stockholm and Göteborg. Like all other vehicles in the Flirt series, this highly modern vehicle also contains LÜTZE TRANSPORTATION interface and indication technology.



Universal Buzzer



LEOS Switch



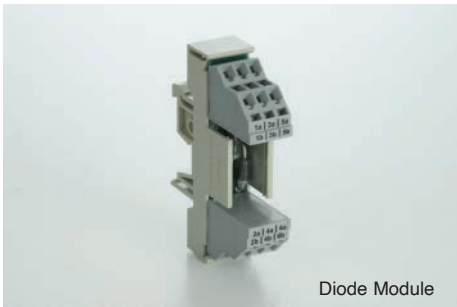
Diode Module



Lighting Element



Transducer



Diode Module

Customer Specific Products



MTB-Module

- Control of two magnetic track brakes
- Supply voltage DC 24 V
- Switching current 2 x 45 A
- Current monitoring with galvanically isolated status feedback



Digital / Analog Converter

- Control of a cellular wheel metering system for sanding applications
- 4-bit input
- Output DC 2.53 – 10 V
- Supply voltage DC 24 – 110 V
- Status output



TRDP SIL 2 Bus Coupler

- Safe Ethernet TRDP bus coupler (SIL 2) with L-Bus² expansion for up to 32 modules, designed for use in rail vehicles.
- Certified in accordance with EN 50126, EN 50716, EN 50129, and EN 50155.
- The standard product has been enhanced with an additional protocol implementation, expanding its application range and flexibility for railway applications.

Certificate

LÜTZE is ISO 22163:2023 / IRIS Rev.04 certified

In 2007, LÜTZE was among the first 25 companies worldwide to obtain the new Railway Industry Standard IRIS certification. In 2024, the IRIS Rev.04 standard was successfully met. With the transition to the ISO 22163:2023 Standard IRIS goes significantly further than the requirements of the ISO 9001 standard and incorporates additional railway-specific requirements.



As a specialist for electronic components in rail vehicles, LÜTZE is aware of the high standards that your applications require from our products. Based on this quality awareness and our claim of supporting you with the latest technologies and designing your products reliably and cost-effectively, we have developed into the leading supplier in this market. In addition to the certification according to DIN EN ISO 9001:2015 LÜTZE also documents its leading position by means of a certified management system in accordance with the International Railway Industry Standard, IRIS.

IRIS is a standardized method used worldwide for assessing the management systems of suppliers, which takes specific standards for the rail vehicle industry into account. With the IRIS certification, we have made another important step in the continual improvement of collaboration with you, our customers from the rail industry and we are looking forward to supporting you even better in your next projects.

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