SCHALTBAU

Championing Safety on Rail

Product Overview

Championing Safety on Rail

SPII

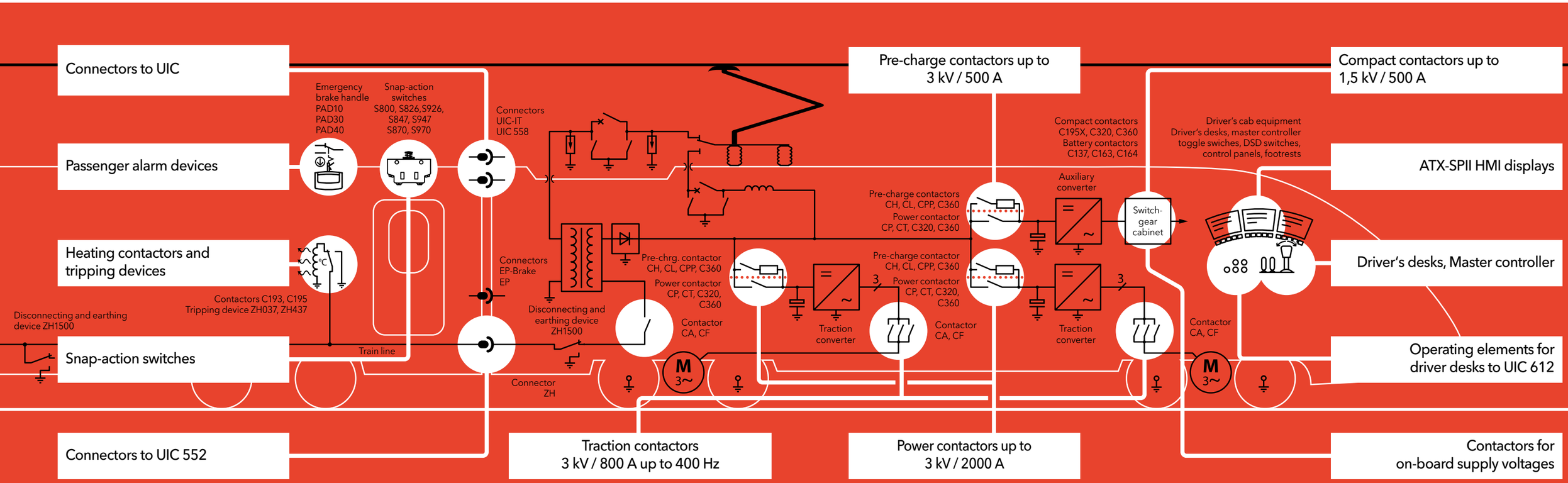
As part of the Schaltbau Group, SPII serves as the center of competence for human machine interfaces in Italy. Their solutions, implemented globally, guarantee a profound driving experience that prioritizes both safety and satisfaction. SPII is dedicated to advancing the future, actively seeking innovative ideas, and embracing engineering as a transformative journey rooted in technology, ergonomics, and style.

SCHALTBAU

As pioneers of electrification, we have been championing the safety on rail for generations. Our engineering roots lie in the electrification of the German railway system, and thus, our experience spans almost a century. Today, we set the market standard for safe and high-quality electromechanical components and electronic switchgear for modern rail transport to ensure sustainable, safe and reliable operations.

Our products are found in rail vehicles ensuring safety and comfort for goods and passengers under tough railway operating conditions: they switch, connect and control electrical systems.

SCHALTBAU SPII



We ensure sustainable, safe and reliable railway operations in a wide range of applications.

Control & Signaling

Precision in control and signaling equipment

HVAC & Lighting

Redefining rail comfort and safety

Driver Desks

Leading the way with advanced driver desks

Interactive Displays

Precise navigation with interactive all-rounders

Traction & & Power Supply

Sustainable traction solutions for next-generation power supply

Power Distribution

Engineered efficiency for data, signal and power distribution

Master Controllers

Tailored to your needs

Footrests

Customized for safety, comfort, and control

Focus on quality with common goals and values

Comprehensive quality management is the guarantee of customer satisfaction and therefore safeguards the long-term success of Schaltbau. We are aware of our social responsibility for maintaining the natural environment and act accordingly.

IRIS Certification

Schaltbau GmbH ISO 9001 certified since 1994

Schaltbau GmbH ISO 14001 certified since 2002

Certified product safety for rail vehicles

Certified product safety is a crucial aspect for confidence in the quality and reliability of products. Independent certification bodies test products for conformity and safety standards, and numerous approvals are available for the series shown in this brochure - please enquire about which certifications are available for your desired product.

CE · CCC · EAC · UKCA · cULus

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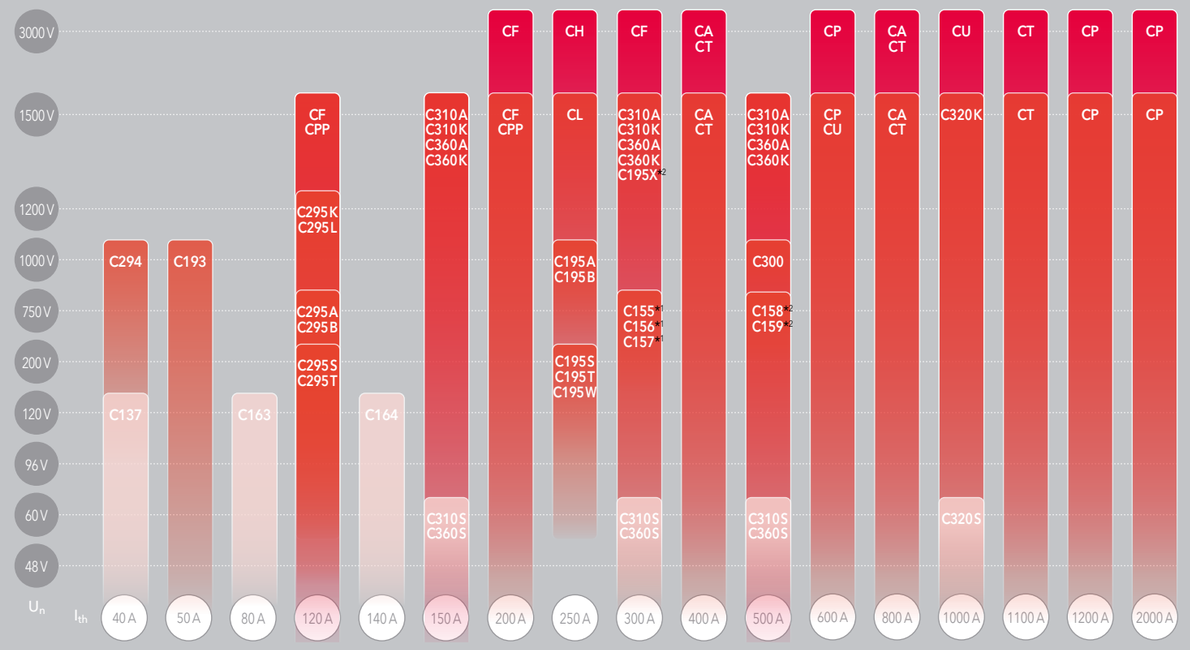
Contactors

Our DC and AC contactors play a crucial role in the railway industry as they seamlessly control power distribution, enable smooth acceleration and deceleration, and support efficient energy utilisation. The numerous and complex power supply systems of railway vehicles are covered by different switch-gear series. Universal single-pole and multi-pole contactors as well as battery, high-voltage and traction contactors are available.

Product overview railway contactors

A broad product portfolio of contactors sets the standard for safety and efficiency. Universal single-pole and multi-pole contactors as well as battery, high-voltage and traction contactors are available.



1–2–3 pole traction contactors

Switching high voltage, high currents
and frequently switching under load

CA series

**1 and 3 pole NO power contactors
up to 3,000 volts and 800 amps for AC**

The CA series are available as 1 or 3 pole AC contactors. It is typically used for switching off permanent magnet traction motors (PMSM) of EMUs in the event of a short-circuit in the output circuit of the traction inverter in order to prevent the drive from being blocked. The CA contactor series is specifically designed for use with traction motors with supply voltage frequencies of up to 400 Hz.

- Power range:
  - Nominal voltage 1,500–3,000 volts
  - Conventional thermal current 350–540–800 amps
- High short-circuit breaking capacity for frequencies up to 400 Hz
- 1 and 3 pole versions
- Reinforced insulation between main circuit and control/auxiliary circuit
- Functional insulation for main circuit
- Tested to railway standard EN/IEC 60077

CA1115/04

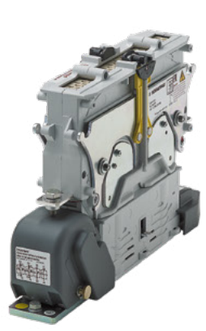
CA1330/08

CT series

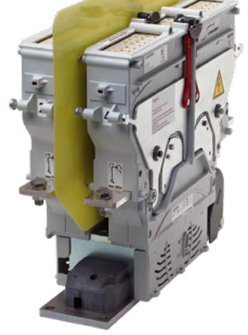
**1 and 2 pole NO power contactors
up to 3,000 volts and 1,100 amps for DC and AC**

CT series power contactors are outstanding for extinguishing the arc with a combination of electromagnetic and permanent magnetic blowout and ensuring high breaking capacity. The innovative technology enables the almost unrestricted use in AC and DC traction power networks. Schaltbau CT traction contactors have been operating successfully for decades, all across the world in locomotives and EMUs.

- Power range
  - Nominal voltage 1,500–3,000 volts
  - Conventional thermal current 400–800–1,100 amps
- DC bi-directional / AC, f ≤ 60 Hz
- 1 and 2 pole versions
- Combination of permanent-magnetic and electromagnetic blowout – no critical currents
- Tested to railway standard IEC 60077, GB/T 14048.4, UL/IEC 60947-4-1



CT1115/04



CT1230/08

1 pole traction contactors

Switching high voltage, high currents
and frequently switching under load

CP series Additional variants available

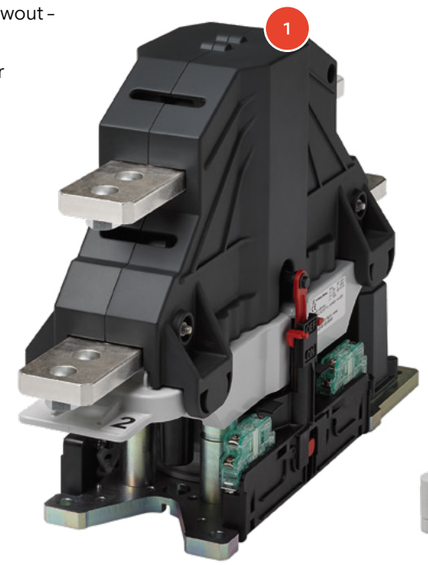
**1 pole bi-directional high-voltage
contactors, disconnectors, changeover switches
up to 3,000 volts and 2,000 amps for DC and AC**

With the CP series, Schaltbau is introducing an innovative concept to the switchgear market. The arc-handling is done exclusively by permanent-magnetic blowout. This patented technology ensures fully bi-directional breaking capability and enables an extremely compact design for this performance class. And for the first time the universal devices can be configured as a NO/NC contactor, disconnector or changeover switch. Furthermore, a high-voltage discharging contact, a pre-charge contactor or several auxiliary contacts can be integrated.
This enables us to react flexibly to changing customer requirements.

- Power range:
  - Nominal voltage 1,500–3,000 volts
  - Conv. thermal current 600–800–1,000–1,200–1,500–2,000 amps
- DC bi-directional / AC, f ≤ 60 Hz
- Easily configurable as a NO/NC contactor, disconnector or changeover switch
- Exclusively permanent-magnetic blowout – no critical currents
- Low total cost of ownership, modular and compact
- Tested to railway standard IEC 60077

Optionally integrable pre-charge contactor – CPP series

A pre-charge contactor from the CPP series can be directly integrated. This saves space and ensures the effective limitation of the inrush current of the DC link. Also available separately.



1 CO CP3130/12
U_N = 3,000 V, I_{th} = 1,200 A

2 NO CP1115/12
U_N = 1,500 V, I_{th} = 1,200 A

3 Pre-charge NO CPP1115/02
U_N = 1,500 V, I_{th} = 200 A

1 pole NO contactors

Switching high voltage, high currents
and frequently switching under load

C193 series

**1 pole NO contactors
up to 1,000 volts and 50 amps for DC and AC**

Single pole high-voltage contactor of compact design: Notwithstanding its small size, the C193 series contactor features an extraordinary switching capacity for DC applications up to 1,000 volts. Best suited for the harsh environment of public transport, the C193 has proven to be a transportation system component of high reliability which has an electrical life that is above average.

- Power range:
  - Nominal voltage up to 1,000 volts
  - Conventional thermal current 50 amps
- DC, uni-directional / AC, f ≤ 60 Hz
- Suitable for years of continuous duty
- Intended for high ambient temperatures
- Double-break contacts
- Versions for DC and AC operation, DC versions with blowout magnets
- DIN rail mount option
- Tested to railway standard IEC 60077, GB/T 14048.4, UL/IEC 60947-4-1

C193

C195 series

**1 pole NO contactors
up to 1,500 volts and 320 amps for DC and AC**

The modular contactors of the C195 series offer diverse configurations for DC or AC contactors up to 1,500 volts nominal voltage and 320 amps continuous current. The C195 X version can also switch DC voltage bi-directionally. The bistable versions require no energy in continuous operation. With small dimensions, the C195 has a high breaking capacity thanks to double contact interruption in a largely closed contact chamber.

- Power range
  - Nominal voltage 1,500 volts
  - Conventional thermal current up to 320 amps
- DC, uni-directional (C195 X bi-directional) / AC, f ≤ 60 Hz
- Suitable for years of continuous duty
- Intended for high ambient temperatures
- Double-break contacts
- Versions for DC and AC operation, DC versions with blowout magnets
- Tested to railway standard IEC 60077, GB/T 14048.4, UL/IEC 60947-4-1

C195 S/

C195 A/

C195 X/

1 pole NO contactors

Switching high voltage, high currents
and frequently switching under load

CH1130/02 series

**1 pole NO high-voltage contactors
up to 3,000 volts and 250 amps for DC and AC**

The CH1130/02 series replaces the CH high-voltage contactors that have been tried and tested for decades. The design has been completely revised. The CH1130/02 now also features efficient permanent magnets and ceramic elements for arc quenching. The contactor is used as a pre-charge contactor in power supply systems or as a main contactor in heating and air conditioning systems.

- Power range:
  - Nominal voltage 3,000 volts
  - Conventional thermal current 250 amps
- DC, semi-bi-directional / AC, f ≤ 60 Hz
- Compact, robust design
- Double break contacts
- Permanent magnets and ceramic elements for arc extinguishing
- Replaces the existing CH series
- Tested to railway standard IEC 60077

CH1130/02

CPP series

**1 pole NO and NC contactors for DC or AC
up to 1.500 volts and 200 amps**

The new super-compact DC contactors from the CPP series are the smallest contactors for handling loads up to 200 A and are suitable for nominal operating voltages of up to 3,000 V. The single-pole contactor is available as an NO or NC contactor.
They are used in main and auxiliary converters of railway vehicles. These devices are ideally suited as integrated or separate pre-charge contactors for the large Schaltbau models CP and CT.

- Power range
  - Nominal voltage 1,500 volts
  - Conventional thermal current NO 200 amps or NC 120 amps
- DC bi-directional / AC, f ≤ 60 Hz
- Permanent magnetic blowout – no critical current range
- High making and breaking capacity
- 2 auxiliary switches with mirror contact function
- Super-compact, robust, reliable
- Tested to railway standard IEC 60077, GB/T 14048.4, UL/IEC 60947-4-1

CPP2115-02

CPP2115-01

2 pole NO contactors

Switching high voltage, high currents
and frequently switching under load

C294 series

2 pole NO contactors
up to 1,000 volts and 40 amps for DC

Double pole high-voltage contactor of compact design: Notwithstanding its small size, the C294 series contactor features an extraordinary switching capacity for DC applications up to 1,000 volts. Best suited for the harsh environment of public transport, the C294 has proven to be a transportation system component of high reliability which has an electrical life that is above average.

- Power range:
  - Nominal voltage up to 1,000 volts
  - Conventional thermal current 40 amps
- DC, uni-directional
- Intended for high ambient temperatures
- Double-break contacts
- Arc extinguishing with blow magnets
- Higher switching capacity resulting from main contacts connected in series
- Parallel connection results in longer electrical life
- Tested to railway standard IEC 60077, GB/T 14048.4, UL/IEC 60947-4-1

C294

C295 series

2 pole NO contactors
up to 1,200 volts and 120 amps for DC and AC

With its compact size and efficient arc chute our C295 series contactor allows the handling of voltages up to 1,200 volts and currents of 120 amps max. Switching high amperage even at significant inductance can be achieved by series connection of the main contacts. Typical applications are to be found in traffic engineering equipment and conversion engineering of complex power supplies.

- Power range
  - Nominal voltage 1,200 volts
  - Conventional thermal current 120 amps
- DC, uni-directional / AC, f ≤ 60 Hz
- Double-break contacts
- DC versions with magnetic blowout
- Higher switching capacity resulting from main contacts connected in series
- Parallel connection results in longer electrical life
- Tested to railway standard IEC 60077, GB/T 14048.4

C295

Multipole NO contactors

Switching high voltage, high currents
and frequently switching under load

CL series

1, 2 and 3 pole NO contactors
up to 1,500 volts and 200 amps for DC and AC

CL series contactors are the economical solution for switching DC and AC currents in the medium power range. The compact contactors come with an arc chute that has proven itself many times over and are suitable for universal use in the harsh environmental conditions of industrial applications as well as in DC and AC railway networks. The switching devices guarantee reliable, low-wear switching of nominal voltages up to 1,500 volts.

- Power range:
  - Nominal voltage 1,500 volts
  - Conventional thermal current 200 amps
- DC, uni-directional / AC, f ≤ 60 Hz
- 1, 2 and 3 pole versions
- Double break contacts
- Versions for DC and AC operation
- DC versions with magnetic blowout
- Drives with coil tolerances according to railway standard
- Tested to railway standard IEC 60077, GB/T 14048.4

CL1115/02

CL1315/02

CF series Additional variants available

1 up to 6 pole NO or NC contactors
up to 3,000 volts and 400 amps for DC or AC

Multi-pole contactors from the CF series offer a wide range of applications thanks to their modular design. The series comes with three different switching chambers that are optimally adapted to the switching capacity. These can be configured universally as normally open, normally closed or in combination as changeover contacts. An efficient electronic economy circuit reduces power consumption and heat loss and saves costs.

- Power range
  - Nominal voltage 1,500–3,000 volts
  - Conventional thermal current 200–300–400 amps
- DC bi-directional / AC, f ≤ 60 Hz
- Configurable as NO, NC or changeover switch with 1 to 6 main contacts
- Innovative application-dependent arc chamber design
- High short-circuit breaking capacity
- 4 auxiliary switches, optionally
- Low energy consumption and low heating thanks to sophisticated coil saving circuit
- Tested to railway standard IEC 60077

CFS3-15

1 pole NO contactor

Switching of on-board supply voltages
and frequently switching under load

C137, C163, C164 series

**2 pole battery contactors
up to 110 volts and 140 amps for DC**

Contactors of the C137, C163 and C164 series are suitable for carrying direct currents in the range of 40 amps to 140 amps for all common battery voltages of up to 110 volts. The battery contactors are available as single-pole make contacts with magnetic blowout or as single-pole changeover contacts with an additional galvanically isolated break contact. The contactors are suitable for switching small or medium loads.

- Power range:
  - Nominal voltage up to 1,000 volts
  - Thermal current 40 amps
- Compact design
- Double-break contacts
- Easy to replace main contacts
- Blowout magnets
- 1 Auxiliary switch optional
- Tested to railway standard IEC 60077,
  GB/T 14048.4, UL/IEC 60947-4-1

C137

C163

C164

1 pole NO contactor

Power contactor
for frequent switching under load

C320 series

**1 pole bi-directional NO contactors
up to 1,500 volts and 1,000 amps for DC and AC**

The C320 from our Eddicy portfolio ensures safe switching of high loads and provides reliable protection in the event of a system fault. It is therefore also suitable for use as the main contactor in traction and auxiliary converters of rail vehicles with battery, hydrogen and storage hybrid drive systems or as an isolating contactor in battery circuits with high currents. The device has an efficient ceramic arc chamber, double-break contacts and a high breaking capacity.

- Power range
  - Nominal voltage 1,500 volts
  - Thermal current 1,000 amps
- DC, bi-directional / AC, f ≤ 60 Hz
- Efficient extinguishing chamber with permanent magnetic blowout
- Very high making and breaking capacity and high rated short-time withstand current
- Max. 4 auxiliary switches,
  of them max. 2 with mirror contact function
- Low energy consumption, thanks to PWM controller
- Tested to railway standard IEC 60077,
  GB/T 14048.4, UL/IEC 60947-4-1

C320 S

C320 K

1 pole NO contactor

Contactor for safe disconnection of the traction
battery and emergency switch-off under load

C360 series

**1 pole bi-directional NO contactors
up to 1,500 volts and 500 amps for DC and AC**

The C360 is a bi-directional DC NO contactor. It was designed to ensure safe switching of high loads and to protect reliably in case of a system malfunction. The new bi-directional contactors are suitable for typical applications such as the DC end of inverters, combiner boxes of photovoltaic installations, battery storage systems and electric vehicles. The key features and benefits of the C360 series are the compact design, double-break contacts, very efficient newly developed arc chamber as well as the high breaking capacity.

- Power range:
  - Nominal voltage 1,500 volts
  - Thermal current 150–300–500 amps
- DC, bi-directional / AC, f ≤ 60 Hz
- Efficient extinguishing chamber with permanent magnetic blowout
- High making and breaking capacity and high rated short-time withstand current
- Max. 2 auxiliary switches
  with mirror contact function
- Low energy consumption,
  thanks to PWM controller
- Tested to railway standard EN/IEC 60077

C360 S

C360 K

1-2 pol disconnector switch

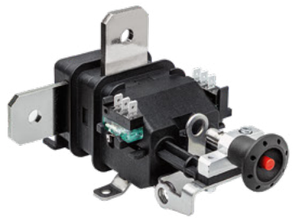
Switch for safe disconnection of the traction battery
and emergency switch-off under load

MD500 series

**1 and 2 pole manual disconnectors
for battery voltages up to 1,500 volts**

The modular, manually operated MD500 disconnectors carry currents of up to 500 amps – without noticeable power loss thanks to the new, patented contact system. The devices are suitable for use with powerful high-voltage battery packs for traction applications in battery and hydrogen-powered vehicles, but also in rail vehicles with storage hybrid drive systems. The robust contact system is dimensioned for carrying short-circuit currents of up to 30,000 amps for short time.

- Power range
  - Nominal voltage 1,500 volts
  - Thermal current 500 amps
- DC bi-directional
- Manual actuator with integrated safety catch
  for secure locking
- Contact system with extremely low contact resistance (< 100 µΩ) and very high rated short-time withstand current up to 30,000 A @ 100 ms for years of continuous operation.
- 1 and 2 pole versions
- 2 auxiliary switches
- Tested to railway standard EN/IEC 60077

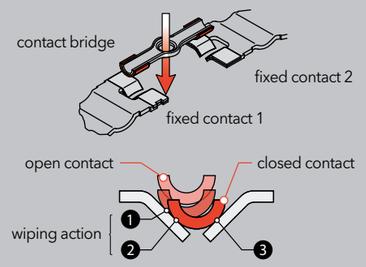


MD521

Snap-action switches

With double contacts, positive opening operation and a service life of up to 10 million switching cycles, Schaltbau offers the ideal component for fail-safe systems. They have a VDE-tested snap-action switching mechanism, which guarantees the safe opening of a sealed NC contact even after a short circuit. The switches are also available with self-cleaning double contacts, galvanically isolated contact bridges and silver or gold contacts. The product portfolio is supplemented by variants for extreme requirements and switches up to protection class IP67.

Wiping double-break contacts



Functional principle: The contact bridge is loosely supported by the plunger inside the switch and initially meets the V-shaped fixed contacts at one point only (position 1) before it is straightened between them by the coaxial pressure of the snap spring. The contact bridge thereby slides from position 1 to position 2 and creates a defined friction. During each operation this wiping action results in self-cleaning of the contacts at least on one side. In the total travel position the contact is closed on either side of the V-shaped fixed contact (at 2 and 3).

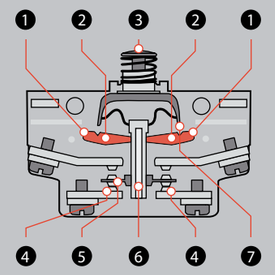
Variants for extreme requirements

PEI **Extremely robust & environmentally resistant**

- **Higher temperature resistance** up to –55° C … +150° C, depending on series
- **Higher chemical resistance**
- **Higher impact resistance** compared to polycarbonate (PC)

Schaltbau snap-action switches from the 9 series made of polyetherimide (PEI) are suitable for use in harsh environmental conditions. The robust amber-coloured switches are suitable for applications where impact forces place high demands on the impact resistance of the material. Or for use in products that are exposed to strong chemical influences and extreme temperatures. The switches switches have the same design, dimensions and technical features as the switches of the standard series.

Positive opening operation



Positive opening: The plunger 6 is pushed upwards by both positive opening levers 1 and the contact bridge 5 is mechanically separated from the normally closed contacts 4. The actuating force is transmitted from top to bottom:

- The tips 7 of the actuator 3 act on the positive opening levers 1
- The actuating force is transmitted via the pivot point 2 to the plunger 6 with the contact bridge 5
- Opening of the circuit by positive force transmission from the actuator 3 to the contact bridge 5.

Snap-action switches

Switches for safety-related applications with robust and precise switch mechanism and positive opening operation

S800 series

Snap-action switch with positive opening and solid contact bridge

Schaltbau S800 series snap-action switches have been in use for decades and have proven their reliability in innumerable applications. The excellent bouncing action of the S800 is down to its strong catch and return springs. They feature double-break contacts, snap-action mechanism and positive opening operation which ensures a forced breaking of the normally closed contacts in case of spring failure or contact welding due to a short-circuit. This makes them ideally suited for use in safety related applications.

- Power range:
  - Utilization category* AC-15 230 V / 3 A, DC-13 110 V / 1 A
  - Conventional thermal current 10 A
- Positive opening operation, IEC 60947-5-1 Annex K,
- Housing material: S847 polycarbonate (PC)
- Dimensions to DIN 41636-6, type F: 50 x 30 x 12 mm (L x H x B)
- Degree of protection IP40, DIN EN 60529
- High electrical rating due to solid contact bridge
- Contact material: Silver or silver gold-plated, optionally with blow magnets
- High resistance to shock and vibration

S800

S800

S826, S926 series

Switches with positive opening operation and wiping double-break contacts

S826 series features galvanically isolated contact bridges that make it possible to control two separate load circuits with independent voltage levels at the same time. The S926 series snap-action switches feature both a better resistance to temperature and chemicals as well as a higher impact resistance. This makes them ideally suited for automation tasks with separate electric loads. The wiping, double-break contacts ensure high reliability even at low electrical loads. Switches with gold contacts are particularly suitable for low currents and voltages.

- Power range:
  - Utilization category* AC-15 230 V / 1 A, DC-13 110 V / 0.5 A
  - Conventional thermal current 10 A
- Positive opening operation, IEC 60947-5-1 Annex K,
- Housing material: S847 polycarbonate (PC), S947 made of particularly robust polyetherimide (PEI)
- Dimensions to DIN 41636-6, type F: 50 x 28.5 x 12 mm (L x H x B)
- Degree of protection IP40, DIN EN 60529
- Self-cleaning, double-break contacts
- Form Z SPDT-DB, galvanically isolated
- Contact material: Hard silver or gold alloy, optionally with blow magnets

S826

S926

* For silver contacts, gold upon request

Snap-action switches

Switches for safety-related applications with robust and precise switch mechanism and positive opening operation

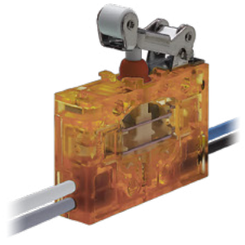
S847, S947 series

Snap-action switches with positive opening operation and self-cleaning double-break contacts

S847 series snap-action switches in modular design are available with three degrees of protection according to IEC 60529: IP40 (protected against solid particles), IP60 (dust-proof), and IP67 (water-proof). The S947 series snap-action switches feature both a better resistance to temperature and chemicals as well as a higher impact resistance. Self-cleaning double-break contacts as well as protection against dust, moisture and pollutants, the switches are highly reliable even at low contact ratings. The switches are therefore also suitable for switching low currents and voltages.

- Power range:
  - Utilization category* AC-15 230 V / 1.5 A, DC-13 110 V / 1 A
  - Conventional thermal current 10 A
- Positive opening operation, IEC 60947-5-1 Annex K,
- Housing material: S847 polycarbonate (PC), S947 made of particularly robust polyetherimide (PEI)
- Dimensions to DIN 41636-6, type F: 50 x 36 x 12 mm (L x H x B)**
- Degree of protection: Contacts IP40, IP60, IP67, terminals IP00, IP67 nach DIN EN 60529
- Form Z SPDT-DB, galvanically isolated
- Self-cleaning, double-break contacts
- Contact material: Hard silver or gold alloy, optionally with blow magnets
- Long overtravel after positive opening operation

S847



S947

S870, S970 series

Snap-action switches with positive opening operation and self-cleaning contacts

The S870 is the classic Schaltbau snap-action switch. Self-cleaning contacts and protection against dust, moisture and pollutants ensure high reliability even with low contact loads. In contrast, the S970 series is more resistant to temperature, chemicals and impact. The compact dimensions, the degree of protection up to IP67 and special versions, e.g. with prefabricated cable or individual strands, also make the switch interesting for customised applications.

- Power range:
  - Utilization category* AC-15 230 V / 1.5 A, DC-13 60 V / 0.5 A
  - Conventional thermal current 10 A
- Positive opening operation, IEC 60947-5-1 Annex K,
- Housing material: S847 polycarbonate (PC), S947 made of particularly robust polyetherimide (PEI)
- Dimensions to DIN 41636-2, type A: 30 x 16 x 10.5 mm (L x H x B)**
- Degree of protection: Contacts IP40, IP60, IP67, terminals IP00, IP20B, IP67 to IEC 60529
- Self-cleaning contacts
- Contact material: Hard silver or gold alloy
- High resistance to shock and vibration

S870

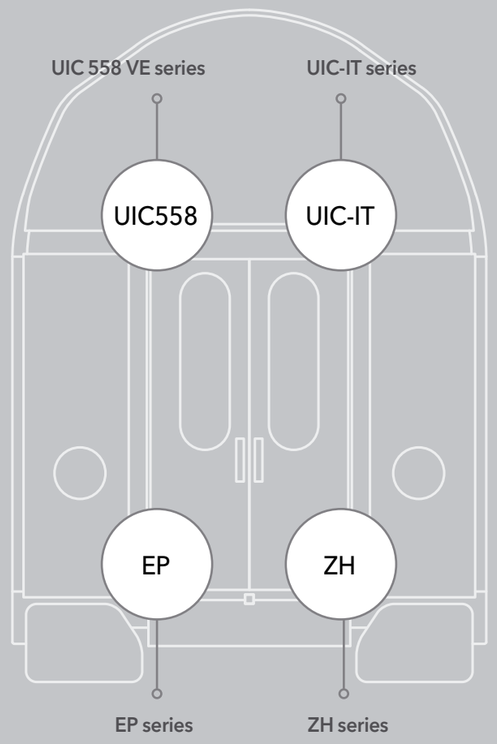
S970

* For silver contacts, gold upon request

** Housing without terminals, leads, actuators

Connectors

Schaltbau connectors for railway and traffic engineering can be found in many rail vehicles and special purpose vehicles where they provide for safe and comfortable operation. These include not only the connectors manufactured to UIC standards but also many connector series used for industrial applications.
The heavy-duty connectors reliably transmit power and also control signals.



International railway jumper for inter-vehicle connections to UIC standards

UIC 558 VE series
Updated connector for remote control, doors and lights or for public address systems in passenger coaches and multiple unit trains.

UIC-IT series
Robust and state-of-the-art Ethernet solution for data communications in modern railway vehicles.

EP series
Connector for electro-pneumatic brakes (EP brakes) as well as for emergency brake override control.

ZH series
UIC 552-compliant rugged jumpers providing electrical connections between rail vehicles as well as carriages.

More robust, railway-compatible industrial connectors

M and G series
Signal and power transmission in harsh railway vehicle environments.

LV series
High-current capable charging connector for modern fast chargers.

SB series
Connection of supply line and control cable for automatic train protection systems installed in bogies of railway vehicles

UIC connectors

Robust connectors for power and signal transmission to railway standards

EP series

Railway jumpers for the electro-pneumatic brake system and emergency brake override to UIC 541-5 VE

This heavy-duty jumper is designed to ensure the electrical connection within a train for the electropneumatic brakes as well as the bypass of an electropneumatic emergency brake. They are fed by a common electrical cable that runs the length of the train. Integrated in the receptacle is a switching element as pilot contact which is used for feedback signalling a plug being mated. Whereas the end of train is signalled by means of a pin contact in the dummy receptacle. The connectors comply with the provisions of the UIC 541-5.

- Power range:
  - Rated voltage 250 V max.
  - Rated current 35 A max.
- Connector for power and signal transmission
- Number of contacts: 4 + 2 + 2 + 1 (+2)
- Feedback:
  - Plug being mated: via an optional switching element integrated in the receptacle shell
  - End of train: via a pin contact in the dummy receptacle
- Rugged mechanical and electrical design
- Receptacle shell with metal handle
- Interlock circuit (handle)

Jumper receptacle EP

Plug EP

ZH series

Inter-car jumpers for power supply via the train busbar to UIC 552

Schaltbau ZH series jumpers have been proving their worth in the railway industry for years. These robust connectors are required for all vehicles used in international transport, including traction units equipped with a train busbar.
The portfolio also includes dummy sockets, junction boxes and cable holder junction boxes. The connectors also come assembled with a connection cable on one side or on both sides. The connectors comply with the provisions of the UIC 552.

- Power range:
  - Rated voltage 3 kV AC/DC
  - Rated current 800 A @ -10°C
- Connector for power transmission
- Number of contacts: 1
- Rugged mechanical and electrical design, receptacle shell with metal handle
- Locking the plug in the socket and locking the coupling and dummy socket with a locking key
- Pilot contact for feedback: optional switching element integrated in the receptacle is used for feedback signalling a plug being mated
- Interlock circuit (handle)

Jumper receptacle ZH550

Plug ZH551

UIC connectors

Robust connectors for power and signal transmission to railway standards

UIC series

Railway connector for remote switching of lighting and doors and for audio communication to IRS 50558

The robust railway connectors provide the electrical connection for remote switching of lighting, doors or the sound system in passenger trains and railcars. The connectors are also suitable for digital data transmission, e.g. via CAN bus. The ease of maintenance should be emphasised: an interchangeable insert is available for the coupling socket, which significantly reduces maintenance and downtimes. When replacing worn contacts, it is no longer necessary to rewire and lengthy electrical tests can be avoided. The connectors comply with the provisions of the IRS 50558.

- Power range:
  - Rated voltage 60 V (without PE), 110 V (with PE)
  - Rated current 10 A
- Connector for signal transmission
- Number of contacts: 13 / 18 / 22+PE, 13 pole plug intermateable with 18 pole receptacle
- Break-away connector for a nondestructive separation of plug and receptacle when two electrically not decoupled vehicles move apart
- Increased corrosion resistance to chemicals, in particular to detergents containing acids or alkalis
- Interchangeable insert with socket contacts on the plug and connection side minimizes maintenance work

Plug UIC 558 18 pole, black, colour code red

Receptacle UIC 558 18 pole, grey, colour code red

UIC-IT series

Connectors in rail vehicles for data communication, for Gigabit Ethernet up to Cat 7 to IRS 50558

Rugged and state-of-the-art Ethernet solutions for data communications is what is required by today's rail vehicles. The new UIC-IT series from Schaltbau meets those requirements providing a highly flexible, universal and reliable Ethernet connection option for the harsh railway environment with a design life that will last for decades. The UIC-IT series has one or two 8-pin Gigabit Ethernet modules. One variant is equipped with 16 additional signal contacts.The connectors comply with the provisions of the IRS 50558.

- Interface connector that offers reliable Ethernet data transmission (Ethernet):
  - 2x 8 pole Gigabit Ethernet module, orange
  - 1x 8 pole Gigabit Ethernet module + 16 signal contacts, yellow
  - 1x 8 pole Gigabit Ethernet module, green
- Gigabit Ethernet module: 360° shielded module for 4 data pairs for transmission of 10 GbE in a permanent link with CAT 7 compliant data cables
- Meets the requirements for closed circuit TV, traveller and passenger information systems, automatic passenger counters, voice control systems and diagnosis features
- Break-away connector for a nondestructive separation of plug and receptacle when two electrically not decoupled vehicles move apart

Plug UIC-IT 2x 8 pole GbE

Receptacle UIC-IT 2x 8 pole GbE

Receptacle UIC-IT 8 pole GbE + 16 pilot contacts

Receptacle UIC-IT 8 pole GbE

Connectors

Universal industrial connectors, for high reliability and safety under harsh conditions

M series

Robust, universal and modular circular connectors

Eddicy M series connectors are also suitable for use in the railway industry. They have a modular design and are suitable for use in harsh conditions. Plug and receptacle housings can accommodate either male or female inserts. Available in two housing sizes with different numbers of poles, the connectors are dust and water pressure-tight. In addition, M connectors are largely resistant to aggressive liquids or vapors, as well as heat and cold.

- Power range:
  - Rated voltage 400 V max.
  - Rated current 50 A max.
- Connector for power and signal transmission
- Number of contacts: M1: 4+PE / 6+PE
  M3: 6+PE / 5+3+PE / 12+PE / 7+7+PE
- Solid machined contacts, surface silver or gold, crimp connection
- Modular design
- Rugged shell made of impact resistent plastic
- Functional threaded coupling with protection degree IP67 / IP69K
- Mechanical endurance > 5,000 mating cycles
- Electrical and mechanical characteristics to IEC 61984

M1 connectors

M3 connectors

G series

Robust, modular circular connectors made of die-cast aluminum

The robust Eddicy G series connectors are dust and splash-proof to IP54 or IP67 and largely resistant to acids and alkalis as well as heat and cold. G connectors are available in four different housing sizes, numerous housing variants and with a large number of poles. The die-cast aluminum housings, which can be locked with a bayonet or threaded lock, make the connectors resistant to vibrations and mechanical stress.

- Power range:
  - Rated voltage 500 V max.
  - Rated current 63 A max.
- Connector for power and signal transmission
- Number of contacts:
  G18: 12 max.
  G28: 24 max. + (PE)
  G42: 24 max. + (PE)
  G57: 48 max. + (PE)
- Solid machined contacts, silver surface, crimp or solder connection or solder connection
- Modular design
- Rugged shell made of aluminium die-cast
- Great variety of contact arrangements (2 to 48 contacts + PE)
- Mechanical endurance > 5,000 mating cycles
- Electrical and mechanical characteristics to IEC 61984

G-connectors in 4 housing sizes and numerous variants

Connectors

Universal industrial connectors, for high reliability and safety under harsh conditions

SB series

Robust circular connectors for train control systems

The robust SB series connectors are power and control cable connectors for train control systems in rail vehicle bogies. Equipped with silver-plated or gold-plated contacts in rubber-mounted contact inserts, SB connectors are permanently weather-resistant. Mechanically protected by a solid housing, the plug connection is secured by a robust threaded lock.

- Power range:
  - Rated voltage 115 V max.
  - Rated current 16 A max.
- Connector for power and signal transmission
- Number of contacts: 5+PE / 6 pole / 14 pole
- Solid machined contacts, silver or gold surface or gold, crimp or solder connection
- Robust metal/plastic housing: durable, impact-resistant, UL-compliant
- Tightness up to IP67 in mated and unmated condition
- Functional threaded coupling
- Mechanical endurance > 5,000 mating cycles
- Electrical and mechanical characteristics to IEC 61984

SB circular connectors

LV series

High-current charging connector for modern battery packs

Modern charging connectors with a new optimised main contact system: The solid power contacts can carry high currents with minimal self-heating, have extremely low contact resistance and noticeably reduced contact forces for a significantly longer service life. Thanks to their modularity, Eddicy charging connectors can be individually configured. Pilot and auxiliary contacts or an air connection for electrolyte circulation are also available for optimum battery management.

- Power range:
  - Rated voltage 150 V max.
  - Rated current 500 A max.
- Connector for power and signal transmission
- Number of contacts:
  2 Main contacts
  2 Pilot contacts or air tube
  2 Aux. contacts
- High-quality, solid power contacts
- High acid and temperature resistance
- Air connection for electrolyte circulation systems
- Modular design, safety interlock
- Intermateable with LV Series connectors and those to DIN VDE 0623-589 of other manufacturers

LV vehicle plug universal

LV Battery socket lithium-ion battery with red handle

Electrics for rolling stock

A modern, efficient transport system requires safe vehicles with short downtimes and maintenance times. And this is where the reliability and quality of the components are crucial. Our railway equipment can be found in all rail vehicles worldwide. This is because they meet the high requirements of operators and manufacturers, work flawlessly and thus guarantee safe, smooth operation day in, day out – even under the harsh conditions of rail transport.

Driver's cab and passenger equipment

Schaltbau devices in the driver's cab, such as master controllers, toggle switches, multi-tone signalling devices, electronic buzzers and DSD buttons can be found in trains all over the world. Modular in design, the master controllers are available as standard components, individually configurable or as customised developments. They can be used to flexibly design state-of-the-art driver's desks.

Schaltbau has consistently followed the path to standardization and modularization in accordance with UIC 612. The master controllers fulfill SIL requirements, and consoles with toggle switches and other functional modules are bus-compatible. What was once a simple display is now a PC with a touch screen and full interactivity for the driver. Schaltbau is even equipped for automated driverless operation and offers a small, compact, removable version of a fully functional control panel. This means that the control panel and control switch are not only modular, but also scalable and can be easily adapted to any installation situation.

Popular Schaltbau products with elements of passenger interaction are the controls for their use in the compartments and displays like “WC occupied” as well as the emergency brake handle in carriages and multiple-unit trains.

High-voltage switchgear for power supply

To handle UIC voltages safely and reliably is the trademark of Schaltbau switchgear such as the AC vacuum circuit breaker, the disconnecting and earthing device, the high-voltage switchgear cabinets, the safety contactor for such switchgear as well as sensors and control gear.

Changeover units, for instance, are needed in international mainline service for reconfiguring the control circuits of the auxiliaries with the change of catenary voltage after crossing a border. For this purpose Schaltbau has added rotary scissor switches to its product range of controlgear. The two, three and four position changeover switches have an open modular design and are easy to configure and customize.

SPII IntelliDesk

Driver desks for
rail vehicles

IntelliDesk

Innovative communications and wiring concept for system integration inside a driver's desk

IntelliDesk is an innovative communications and wiring concept for system integration inside a driver desk. Here, every subsystem can be simply connected to a field bus box and immediately establish communication via a central master interface with the on-board train control and monitoring system (TCMS). A feature that is unique to this desk is the display of condition-based maintenance.
IntelliDesk has thus turned out to be pivotal in standardization and modularization as intended by UIC 612 and, at the same time, it offers the utmost flexibility and adaptability to a wide variety of rail vehicles.

- Easy configuration of driver desks, also including complete and finished, with fully integrated electro-mechanical operating elements as well as all electronic subsystems; fast and easy to plan and realise
- Custom required, modular, robust, durable; Various possible variations in the design and arrangement of additional display and control elements; condition display based on maintenance (unique)
- Ergonomics, ease of use, pleasant feel and modern design for more safety
- Subsystems with integrated field bus and/or gateway for communication with the TCMS; data communications via a central master interface
- Hardware and software-prepared safety design for next-generation SIL 2 driver desks; internal, redundant and EN 50159-compliant CAN network; TCMS connection via Ethernet

Virtual Reality
V-DESK
Validation-
and design tool

SPII IntelliArm

Driver desks for
rail vehicles

IntelliArm

Modern driver's desks for modern rail transport

Technology must be functional, helping people to easily and safely solve tasks and challenges.That's why SPII driver desks have been created with human-centered design in mind. With regard to the driver's cab, the train driver, was placed at the center of the conceptualization. Then, step by step, all the functions that the driver needs for their daily work were placed ergonomically and naturally around him or her. In combination with the best available technology for today's most modern trains, we have developed the driver's desk of the future. The result: a new, innovative and minimalist "Human Machine Interface" – the IntelliArm.

- The driver in focus: the right combination, the perfect ergonomics, the best technology, that means integration and implementation of different HMI interfaces into a unique, custom-fit shape
- Compact and modular, IntelliArm can be easily installed even after the driver's cab has been completed and offers full accessibility for maintenance and servicing
- From the beginning, the main user is at the centre of the design of IntelliArm; this is ergonomic, increases his attention and improves safety
- Thanks to the small space requirement and the vertical structure, all internal components can be reached easily and without difficulty; this increases availability

SPII Interactive displays

IntelliCockpit –
Human Machine Interfaces

ATX-SPII Displays

Innovative communications and wiring concept for system integration inside a driver's desk

Modern ATX displays appear modestly as displays, but they are also interactive touch-screen PCs and universal all-rounders: display, diagnosis of the vehicle and operating status, control of subsystems, include ERTMS/SCMT, train radio, timetable and video monitoring. All important parameters can be controlled and monitored very simply and centrally. The units meet the requirements of EN 50155 and comply with the UIC standard, but can also be customised. ATX displays are robust and suitable for years of rough railway operation. They offer a high level of reliability due to predictive maintenance and remote diagnostics.

- Screen size: 8"/10.4"/12.1", up to 21", Resistive/ capacitive touch panel
- Processor: FreescaleTM iMX6®-Quad ARM®-Quad ARM® Cortex up to 1.8 GHz / Intel E3940 up to 1.8 GHz / FreescaleTM i.MX6®-Quad ARM® CortexTM-A9 up to 1.0 GHz with TrustZone® for SIL application
- External interfaces:
  - Keyboard to UIC 612 standard
  - USB / Serial / CanBus / MVB
  - Ethernet 10-100-1000 Base-T Mbps
  - Buzzer and external speaker output
- Up to SIL 3 certificate available

ATX-K062-MMI-00
12.1" LCD screen, easy removable

ATX-K065-MMI-03
10.4" UIC 612 LCD screen

DMI-K065-MMI-42
8" Single or redundant LCD screen

SPII Master controllers

Master controllers and brake controllers for rail vehicles

S334 series

Configurable and expandable functions

Schaltbau master controllers can be found in railway vehicles all around the world. The modular construction of our robust, shock-proof and vibration-proof master controllers enables a wide range of possible design variants and varying arrangements for individual operations, such as direction control, keylock and pushbutton switches and lots more. Modern project management ensures adherence to the required deadlines and quality – even when requirements change.

- Standard master controller complemented by additional existing standard modules
- Compact, rugged, durable
- Can be configured individually, allowing last minute changes
- Mechanically interacting function modules
- Components comply with railway standards (UIC 612 and others)

Project-specific

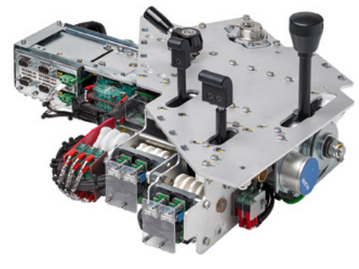
Customized design to order

Master controllers can also be newly designed in close cooperation with the customer according to the respective requirements and exact specifications. Our inhouse electronics development division enables us to respond quickly and flexibly to changing needs. Comprehensive type testing is performed in our laboratory according to customer specifications.

- In-house design and manufacture
- Field bus: Profinet, CAN, and others
- Sensitive touch functions, RFID card reader, automatic reset of the handle, and others
- Mechanically interacting function modules
- Components comply with railway standards (UIC 612 and others)

S334 H34

CTA7000



SP60

Toggle switches

Operating elements for driver's desks in railway vehicles

K series

Toggle switches for driver desks to UIC 612

Schaltbau's award-winning K series toggle switches are equipped with a maximum of 8 S880 sub-miniature switches and are available as 3 and 5 switch settings. They are suitable for all applications from the UIC 612-0 operator standard, making it easy to develop driver's cabs with a modern design for locomotives and multiple units. Optional and uniform illumination of the switches makes separate indicator lights superfluous and also acts as an effective night design.

- Central switch mount with illuminated ring in 5 LED colours used as function indicator or for night design
- 8 switching elements max. (S880 series snap-action switches)
- Lead wire seal option
- Yellow ball handle for ETCS acknowledgement
- Cylinder handle for external warning horn of locomotives
- Solid and fully sealed plastic housing
- Momentary and maintained operation compatible with Schaltbau F and P series
- Easy to mount

F, P, L series

Toggle switches with snap-action switches or cam-operated switching elements

F, P and L series toggle switches are available as 3 or 5 position contact assemblies. The F and P series come fitted with snap-action switches, whereas the L Series sports cam-operated switching elements. The three toggle switch series are designed for use in switch panels and driving consoles of rail vehicles, but are also suitable for industrial applications, such as ship building and vehicle construction.

- Rugged, open design
- 4 switching elements max.
  - F, P series: snap-action switches
  - L series: cam-operated switching elements
- Many different switch settings possible
- L series: suitable for direct switching of high currents
- Special handle styles available
- Protection against inadvertent operation available
- Toggle switch can be lead tab sealed

Toggle switch K with standard lever

Toggle switch K, with T-handle

Toggle switch K with yellow ball handle

Toggle switch P with T-handle

Toggle switch P with special handle

Toggle switch L with standard lever

Portable consoles

Mobile driver's desks for rail vehicles

PDD-100 series

Portable driver console for driverless metro trains

Today, more and more of the world's metros are being operated driverlessly. They therefore no longer require a driver's desk. But if a train is unresponsive on track and defies remote control, or in the case of maintenance on track, a real driver desk would come in handy.
The portable driver console PDD-100 can be connected via plug and play and is immediately ready for use. Like the IntelliDesk, the console is modular and scalable and comes with all operating elements and subsystems fully integrated, so there is no need for wiring.

- Removable and portable, all subsystems already integrated
- Interactive touchscreen HMI for data communication with the TCMS
- Separate console fitted with operating elements, display panels and audible feedback
- Master controller/brake controller with integrated dead-man function
- Train radio display
- Emergency stop switch (mushroom)

PDD-100

Passenger alarm handles

Emergency brake handles for rail vehicles

PAD 10, PAD 30, PAD 40 series new from 2025: PAD 41

Robust passenger alarm handles for lintel and wall mounting

Schaltbau has developed two types of emergency brake handles for use in passenger spaces and service spaces of trains: PAD 10 for lintel mounting, e.g. under the lintel of a carriage door, and PAD 30, PAD 40 and PAD 41 for wall mounting, e.g. in vestibules, passenger spaces or the train manager's compartment. The emergency brake handles meet the design requirements of DIN EN 15327-1 and comply with the provisions for the installation of braking equipment and emergency brake operations in vehicles used for the carriage of persons.

- Elegant design: Housing made of die-cast aluminium, robust, durable, sealable
- Finish: semi-gloss varnish, resistant to acids and chemicals
- PAD 41: Remote reset for driverless, fully automated trains: Reset of the applied brake, optional LED status display (green/red)
- Optional automatic reset (spring return)
- Up to 4 switching elements with gold or silver contacts

PAD 30

PAD 40-R20

Handles and footswitches

Control elements for
dead-man equipment

S579, S293, ZL290 series

Push buttons and foot switches for dead-man equipment

S579 series dead-man handles incorporate the proven Schaltbau limit switches. The rugged switching devices are very versatile and have a very long design life. Schaltbau S293 and ZL290 series dead-man footswitches feature a high actuating speed, a compact design, and a high service life. The dead-man handles and footswitches are designed for use under rough operating conditions, e.g. on locomotives and multiple units.

- Dead-man handles and footswitches with change-over contact
- Rugged, long-lasting, reliable
- Snap-action switch S804 or S814 series:
  - High electrical rating due to solid contact bridge
  - Contact material: hard silver or gold alloy
  - High resistance to shock and vibration
  - S814 featuring wiping, self-cleaning contacts

Footrests

Footrests for
rail vehicles

FRE-CRVIO, FRE-AVTRA, FRM-ASR, FRF-M7 series

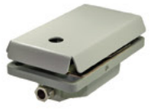
Electrical and mechanical adjustable footrests for railway vehicles

Footrests and DSD switches can be found in railway vehicles all around the world. Footrests with DSD switches allow the driver to operate the driver safety device from an ergonomic seating position while keeping hands free. Additional functions, e.g. for track sanding or horn activation can be integrated. An heatable base plate provides additional comfort in winter. Development, production and assembly are carried out in accordance with DIN EN ISO 9001 and IRIS.

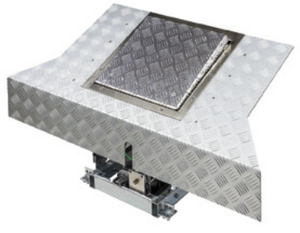
- Modular, rugged, maintenance-free
- Customized design with or without height adjustment
- Integrated DSD foot switch
- Optional additional foot switches
- Optional heatable base plate
- High vibration and shock resistance

S579

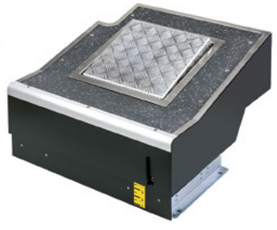
S293



S290



FRE-CRVIO



FRE-AVTRA

Electronic buzzers

Acoustic signalling devices
for train protection systems

JA222, JA224, JA226 series

Electronic buzzers for automatic train protection systems

Electronic buzzers in the driving cab of railway vehicles are an integral part of the intermittent automatic train-running control and the dead-man equipment. Schaltbau JA222 series proven buzzers are designed for that purpose. With its electronic transducers JA224 and JA226 Schaltbau integrates up to nine and ten different warning tones respectively for country-specific train protection systems in an all-in-one device. So the multi-tone buzzers are ideally suited for use in multi-system railway vehicles in cross-border mainline service throughout Europe.

- JA222 series:
  - Signalling for intermittent automatic train-running control and dead-man equipment
  - Multi-level adjustment of frequencies and volume
- JA224 and JA226 series:
  - Multi-tone signalling device for up to 9 or 10 tones
  - Control inputs electrically isolated
  - Tone output prioritized or mixed
  - Multi-level adjustment of output volume
  - Download of the tones into the buzzer from memory card

Control panels

Compartment operating groups
for railway vehicles

ZL192, ZL203 ... ZL228C series

Combinations of display and control elements, actuators and sensors

Schaltbau control panel assemblies can be found in all types of passenger coaches at home and abroad. Over time, specific customer requirements caused Schaltbau to develop its comprehensive range of control panel assemblies. The modular, custom-made design offers great variety in assembling the individual panels, indicators, controls and sensors. They are installed in a recessed panelling, e.g. above compartment doors.

- Red or blue LED lit panel frames as function indicator
- Combination of pushbuttons, indicators, volume and temperature control, temperature sensor
- Electrical connection via cage clamps or flat tabs
- Installation in recessed panelling without cover

JA222

JA224/JA226

ZL192

ZL181

High-voltage equipment

Overtemperature protection devices,
Sensors and controlgear for rail vehicles

ZH437, ZH037 series

Fusible overtemperature protection and tripping devices

Schaltbau fusible overtemperature protection and tripping devices ensure fail-safe thermal cutout protection against overheating of electric air heaters as used in rail vehicles and stationary heating systems. The devices are a prerequisite for fire protection and operate totally independent of the heater controls.

- Fail-safe overtemperature protection of heater coils and tubular elements
- Tripping function independent of control voltage
- Replacement fusible link necessary after tripping operation
- Optional auxiliary contact for version ZH437

ZH437 ZH037

ZH842 series

Solid-state high-voltage signalling relay

The solid-state high-voltage sensor signals high voltage applied to the train line. It supplies electrical loads, which for the conservation of battery power are only operated when high voltage is being applied, with control voltage. Mode of operation: The ZH842 switches on a potential-free relay contact as long as the high voltage at the input terminals exceeds the signalling voltage.

- Identification of UIC 550 compliant voltages
  - 1 kV $16^2/_3$ Hz
  - 1.5 kV 50 Hz
  - 1.5 kV DC
  - 3 kV DC
  - 3 kV 50 Hz
- Meets requirements for reinforced insulation for 3 kV DC to UIC 550 according to EN 50124-1:2001+A1
- Low stand-by consumption
- Potentential-free switching output

ZH842

ZH1114 series

Voltage selector for multi-system railway vehicles

With its voltage and frequency analyzer ZH1114 Schaltbau meets the requirements of modern cross-border traffic. It identifies the voltage ranges according to UIC 550 and operates as electronic control device for the Schaltbau changeover unit, which adapts the individual loads of the railway vehicle to the different detected supply voltages. Additionally, the correct electrical configuration is being tested by the device.

- Identification of UIC 550 compliant voltages
  - 1 kV $16^2/_3$ Hz
  - 1.5 kV 50 Hz
  - 1.5 kV DC
  - 3 kV DC
  - 3 kV 50 Hz
- Meets requirements for double insulation for 3 kV DC to UIC 550 according to EN 50124-1:2001+A1
- Customized setting of the device via PC – same hardware for different configurations
- Application: Adapting the electrical configuration of RIC passenger coaches to the detected supply voltage

ZH1114

High-voltage equipment

Changeover units, disconnecting and
earthing devices for rail vehicles

CO4 series

High-voltage changeover device for the voltage configuration

High-voltage changeover units of the CO4 series are switching devices for load-free configuration of electrical loads.
The 6-position devices are extremely powerful. Changeover devices are needed for voltage configuration for railway vehicles in cross-border traffic with changing supply voltages. Here, the changeover unit is the link between the train busbar and the electrical consumers, e.g. power supply systems and heating registers.

- 6 control inputs for 6 pre-configured positions, controlled via a motor-operated cam controller
- UIC voltages up to 3,600 volts, with reinforced insulation 5,000 volts; continuous thermal currents up to 100 amps. Load-free adaptation of electrical configurations to different train busbar systems according to UIC 550.
- Cam switchgear with 2 to 10 switching chambers (others on request) including ready-to-use connection configuration; customerspecific defined switching programs as well as many switching programs of European railway operators available.
- Various control programs available in accordance with the requirements of the European railway companies
- Simple adaptation of control program to new requirements

CO4

ZH1500 series

Disconnecting and earthing device for single and multi-system rail vehicles

Disconnecting and earthing devices provide easy disconnecting of high-voltage equipment from a high-voltage train line and connect these parts to ground potential to take away all electric energy which might rest in capacitors and other components. This way they guarantee working safely on disconnected and grounded high-voltage installations. The contact system is designed for off-load switching but also allows some emergency switching. Under normal operating conditions the main contactor "energy" is being switched off prior to the opening of the contacts via a door switch.

- Disconnecting and earthing device in accordance with the applicable safety regulations
- Suitable for all UIC voltages
- Insulation for operating voltages up to 5 kV DC max.
- Double-break contacts
- Conv. thermal current 150 A
- Lockable maintenance position
- Forced disconnection of installation when opening the door of the switchgear cabinet

ZH1500

Service

Schaltbau provides comprehensive services via a well-developed service network to make your operations safer, more reliable and more economical. The scope of services offered depends entirely on your requirements, ranging from individual replacement parts to full service or an on-site presence. Our customer advisors, technicians and engineers are at your disposal – a valuable basis for a good partnership to keep operations running smoothly.

Our services for components and systems on rolling stock

+ Repairs
+ Maintenance
+ Overhaul
+ Replacement parts
+ Drop-In
+ Logistics
+ Assembly
+ Analysis
+ Training

Repairs

Replacement or repair? You do not always have to replace a component. If it makes economic sense for you, we will repair your Schaltbau product based on extensive initial diagnostics, including a cost estimate and detailed repair report.

Maintenance

Is your Schaltbau product still in optimum working order? We can provide comprehensive support to meet all requirements throughout its service life. We offer expert technical maintenance for your Schaltbau product based on the intervals and approach defined in your maintenance strategy.

Overhaul

At the end of its service life, a thorough overhaul can allow your Schaltbau product to be used for longer. Based on a reference device, we can design all measures for your Schaltbau product with a view to extending its service life or adding extra technical functions.

Replacement parts

Having an optimal supply of replacement parts plays a significant role in ensuring the vital high availability of your Schaltbau product. We offer tailored concepts (e.g. replacement part kits) so that replacement and wear parts in Schaltbau quality are available over the standard market service period and beyond.

Drop-in

Obsolescence is an important factor affecting the long-term availability of your Schaltbau product. If products are no longer available on the market, design-in solutions may be the answer. We ensure long-term availability in general and develop tailored alternative solutions for your refurbishment project, delivered e.g. as a ready-to-install “plug-in”.

Logistics

We offer rapid global delivery and ensure on-time availability of parts and materials, also within defined reaction times if agreed. Our global location and partner network enables us to serve you locally.

Assembly

Do you need additional help with fitting your Schaltbau product? We are happy to take care of on-site installations, modifications, removals and commissioning.

Analysis

What condition is your Schaltbau product in? Are you sure that it can still be used without causing any issues? We analyze the product’s performance and advise you on optimizing its use.

Training

Know-how makes the difference! We offer tailored training courses on commissioning, using and servicing your Schaltbau product. Whether in-house or directly on site – we guarantee efficient knowledge transfer via our training packages.

Available for you

Schaltbau Competence Center Service

Hotline
+49 89 93005-555

e-Mail
service@schaltbau.de

Safety and efficiency in rail, energy, and e-mobility

Schaltbau is a global industry leader specializing in DC power and providing products and solutions that that enable electrification. With a broad portfolio of contactors, connectors, switches, and safety components, Schaltbau helps partners and customers solve today's challenges in rail.

Building on this experience, with our brand Eddicy we also create future-oriented products and solutions with the highest standards of safety and reliability to switch and protect DC applications in energy and e-mobility.

Schaltbau is headquartered in Munich, Germany and represented globally, with over 1,000 employees worldwide.

SCHALTBAU
Schaltbau GmbH
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