Brochure Connectors

High-quality connectors for industry, transportation and telecommunications
Reliable connections

We provide reliable connections

Connectors must ensure reliable transmission of energy and signals – coping with high voltages, harsh environments and the rough conditions of rail traffic. Connectors from Schaltbau are especially designed to meet these requirements: Where safety and health of human beings are dependent on technology – as in transportation, mechanical engineering, lighting, food processing, battery charging, mining or offshore operations – the rugged heavy-duty connectors from Schaltbau are first choice.

Schaltbau connectors are characterized by: Long life and rugged design, up to 10,000 mating cycles, tightness up to IP69K, high material and temperature resistance as well as resistance to shock and vibration.

This makes them ideally suited to be used for years of continuous operation and under harsh environmental conditions.

For further information visit www.schaltbau.info/connectors
Electromechanical components from Schaltbau are used in all branches of industry in which electrical systems have to be connected, contacted and controlled reliably under the harshest of conditions.

**Connectors manufactured to industry standards**

- **G18, G28, G42, G57, GA, M1, M3 Series**
  Manfields for application for Schaltbau industrial circular connectors are machinery and equipment, measuring, controlling and regulating, as well as drive, power and traffic engineering. The rugged connectors offer a wide variety of contact arrangements to suit a multitude of applications, and always provide for reliable connections.

**Connectors for signal transmission**

- **NF07, NF10 Series**
  Schaltbau special connectors for telecommunications engineering meet the requirements of VG 5351 and VG N8194. These circular audio miniature connectors are extremely robust and have a long design life. A technological equivalent of this connector series sets new standards for signal transmission in industrial applications.

**Charging connectors for industrial trucks**

- **LV80/120, LV160/250, LV320/400, LV500 Series, multifunctional adapters**
  Schaltbau charging connectors are designed to meet the demands of contemporary battery-powered vehicles and systems. They meet the requirement of DIN VDE 0623-589 also with regard to a higher current-carrying capacity. The state-of-the-art contact technology of our charging connectors results in a permanently low contact resistance and reduced contact heating.

**Connectors for railway and traffic engineering**

- **B, EP, G18, G28, G42, G57, M1, M3, SB, UIC 558 VE, UIC-IT, ZH Series**
  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 UK standards but also many connector series used for industrial applications. The heavy-duty connectors reliably transmit power and also control signals.
Schaltbau M1 and M3 Series connectors to industry standard are of modular design, thus offering a customized and cost-effective realisation of your application. You best use the rugged modular circular connectors for applications where high reliability under harsh environmental conditions is paramount. Typical applications are, for instance, mining, ship-building, power plant construction, mechanical and traffic engineering, environmental technology and food processing, to name but a few. We hold numerous official approvals.

Circular modular connectors
Series M1, M3

Rugged, reliable, and designed for universal use – those are the features of the G Series. Sealed to IP54 and IP67 respectively the connectors are dustproof and impermeable to splash-water. They are also resistant to the effects of most acids and alkalis as well as the extremes of temperature.

Series G connectors come in 4 shell sizes and a variety of contact arrangements (2 to 48 contacts + PE) and have a high degree of protection. Sealed to IP54 and IP67 respectively the connectors are water tight even when not mated.

The functional threaded coupling prevents the contacts from touching the insulator, thus making possible a “blind” mating of the connector halves.

FEATURES

- Modular design
- Rugged shell made of impact resistant plastic
- Protection against accidental contact according to IEC 60664-1
- Electrical and mechanical characteristics of connectors to IEC 61984

FEATURES

- Modular design
- Rugged shell made of aluminum 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

FEATURES

- High quality metal shells
- Receptacles sealed to IP67 even when not mated
- Resistant to many aggressive liquids
- Functional threaded coupling
- Electrical and mechanical characteristics to IEC 61984

FEATURES

- Circular audio miniature connectors to VG 95351 and VG 96934
- Optional customized filters
- Plugs and receptacles sealed to IP68 even when not mated
- Spring loaded contacts: Resistant to shock and vibration
- Bayonet coupling
- Shielding ≥ 70 dB (10 kHz ... 10 MHz)
- Approvals: CE

MECHANICAL ENDURANCE

- 2,000
- 3,000

COUPLING

- Threaded coupling
- Threaded coupling, bayonet coupling

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>M1</th>
<th>M3</th>
<th>G18</th>
<th>G28</th>
<th>G42</th>
<th>G57</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 x PE, 6 x PE</td>
<td>2</td>
<td>2</td>
<td>12 max.</td>
<td>24 x PE max.</td>
<td>24 x PE max.</td>
<td>48 x PE max.</td>
</tr>
<tr>
<td>6 x PE, 5 x 3 x PE, 12 x PE, 7 x 7 PE</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

| Orientation | 2  | 2  | 5  | 5  | 4  |

| Rated voltage | 400 V max. | 400 V max. | 25 V | 400 V max. | 500 V max. | 400 V max. |

| Rated current | 4x16 A | 6x35 A | 6x35 A | 3x50 A | 12x16 A |

| Contacts Material Finish Terminal type | Copper wrought alloy, Silver / Gold Crimp | Copper wrought alloy, brass, Silver Crimp, colder, screw-type*

| Mechanical endurance | 2,000 |

| Coupling | Threaded coupling |

* Screw-type: Only selected variants of G28 Series

For more information, visit our website

Catalogue A10.en
Catalogue A20.en
Catalogue A25.en
Catalogue A58.en
High-Power LV Charging Connectors for industrial trucks

Schaltbau high-power connectors of the LV series meet the requirements of the EN 1175-1 and DIN VDE 0623-589 standard for charging connectors featuring a higher current-carrying capacity. A red keying plug signifies shortening charging times in order to reduce downtime and save costs. The LV Series high power connectors are, therefore, ideally suited for modern fast chargers as used for industrial trucks. Thus they cater to the needs of the material handling industry which aims at shortening charging times in order to reduce downtime and save costs.

Delivering maximum performance and working in harsh environmental conditions requires reliable, durable and safe products. It is exactly these requirements that are met by the new Schaltbau LV900 Series charging connectors. The low-maintenance and high-performance connectors fulfil the expectations of the contemporary user: Modern fast chargers recharge vehicle batteries in short time or traditionally over night.

The high ampacity charging connectors for modern fast chargers are capable of carrying currents up to 500 A. Fast charging: High-quality cold-formed contacts and/or water is shut off when the connector is unmated ensures that no acid particles enter the interior of the vehicle.

The low-maintenance and high-performance connectors fulfill the expectations of the contemporary user: Modern fast chargers recharge vehicle batteries in short time or traditionally over night.

**High-current charging connectors**

- Keying to DIN VDE 0623-589: LV 120 A, 250 A, 380 A (higher current-carrying capacity: keying plug red)
- LV 80 A, 160 A and 320 A (keying plug: grey, green, yellow)
- High-quality cold-formed contacts
- Improved resistance to acids and extremes of temperature
- Air supply for electrolyte circulation systems
- Modular design, safety interlock
- Intermateable with LV Series connectors and those to DIN VDE 0623-589 of other manufacturers
- Approvals: 

**Circular connectors Series SB for special applications**

- Screw machine contacts, silver or gold plated
- Sturdy metal/plastic shells: Impact resistant, UL compliant, long life
- Sealed to IP67 when mated or unmated
- Functional threaded coupling
- Electrical and mechanical characteristics to IEC 61984
- Approvals: 

**High-Power Charging Connectors**

- Wet-cell red/grey, dry-cell: green, vehicle: yellow
- LV80/120
- LV160/250, LV320/400 Series
- LV250-HPC, LV400-HPC

**Multifunctional adapters for LV**

- Pilot contact adapter: 2 pilot contacts provide a data link between battery and charger.
- Air tube adapter: Air blow-in system for batteries with electrolyte circulation.
- Multifunctional adapter: Multipurpose adapter for water top up and electrolyte circulation systems. The new feature that the flow of air and/or water is shut off when the connector is unmated ensures that no acid particles enter the interior of the vehicle.

**Multifunctional adaptors for LV**

- Water top up of battery
- Electrolyte circulation: Air blow-in system for batteries can now be shut off when connector is unmated
- Monitoring of battery by means of auxiliary and pilot contacts
- Approvals: 

**Electrical specifications**

- Rated voltage: 150 V, 230 V, 400 V, 500 V
- Rated current: 80 A, 160 A, 320 A (keying plug: grey, green, yellow)
- Number of contacts: 2 main contacts, 2 aux contacts, optional 2 pilot contacts
- Material: Screw machine contacts, silver or gold plated
- Contacts: Copper wrought alloy, Silver-plated
- Contact pressure: 5,000 N
- Coupling: Safety interlock

**Mechanical specifications**

- Rated voltage: 150 V, 230 V, 400 V, 500 V
- Rated current: 80 A, 160 A, 320 A (keying plug: grey, green, yellow)
- Number of contacts: 2 main contacts, 2 aux contacts, optional 2 pilot contacts
- Material: Screw machine contacts, silver or gold plated
- Contacts: Copper wrought alloy, Silver-plated
- Contact pressure: 5,000 N
- Coupling: Safety interlock

**Electrical and mechanical characteristics to IEC 61984**

- Approvals: 

**Circular connectors Series SB**

- Connection of supply line and control cable for automatic train protection systems installed in bogies of railway vehicles. Fitted with silver or gold plated contacts in rubber sealed insulators, the SB series connectors are weather and water proof. The sturdy connectors feature impact resistant shells with threaded coupling for rapid, convenient connections.
**Series B**

8 Series connectors have been designed especially for the demanding railway environment. They are ideally suited for power and control circuits on road and rail vehicles alike. An integrated interlocking circuit ensures that voltage is applied to the power circuit only when all covers are closed and all plugs have been mated or inserted into their respective dummy receptacles.

The connector is designed in accordance with the specifications of the international railway standard UIC 541-5. This heavy-duty connector is designed to ensure the electrical connection within a train for the electropneumatic brakes (EP brakes) as well as an electropneumatic emergency brake override.

Now, there is no need of rewiring any longer. All you need do is exchange worn contacts, you have to cut the old cable in order to replace the insert. It is designed for use with various types of rail vehicles, making it possible to combine rolling stock of different manufacturers and railway operators.

*Features*
- Rugged mechanical and electrical design
- Universal usable connectors for power and control circuits
- Easy replacement of components
- Easy assembly resulting in short assembly times
- Mechanically locking connector
- Approvals: ECE

*Specifications*

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>EP (UIC 541-5 VE)</th>
<th>ZH (UIC 552)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2+PE / 3+PE / 3+PE / 4+PE / 6+PE / 2+PE / 2+PE / 2+PE / 3+PE / 3+PE / 4+PE / 5+PE / 6+PE / 3+PE / 5+PE / 6+PE / 8+PE / 10+PE / 12+PE</td>
<td>4 + 2 = 1 (2)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Series EP**

The connector complies with railway standard UIC 558 VE. It connects lines used for remote control of lights, doors and public address systems in passenger coaches or multiple unit trains. It is also suitable for transmission of binary data, e.g. CAN bus. A new replacement insert will reduce maintenance and downtimes considerably. Usually, if it is necessary to replace worn contacts, you have to cut the old cable in order to replace the insert. Now, there is no need of rewiring any longer. All you need do is exchange the replacement insert of the 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
- Keying prevents connectors from mismating with connectors carrying different inserts
- 13 pole plug intermateable with 18 pole receptacle in accordance with UIC 558 VE
- Approvals: ECE

*Features*
- Break-away connector
- Interface connector that offers reliable Ethernet data transmission (Ethernet)
- 2x 8-pole Gigabit Ethernet module, shell orange
- 1x 8-pole Gigabit Ethernet module + 16 signal contacts, shell yellow
- 1x 8-pole Gigabit Ethernet module, shell 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, traveler and passenger information systems, automatic passenger counters, voice control systems and diagnosis
- Break-away connector in compliance with IRS 50558
- Approvals: ECE

*Specifications*

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>UIC 558 VE</th>
<th>UIC-IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 / 18 / 22+PE</td>
<td>100 V</td>
<td>50 V</td>
</tr>
<tr>
<td>1x orange, 1x yellow, 1x green</td>
<td>10 A</td>
<td>1 A</td>
</tr>
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</table>

**Series ZH**

Designed in compliance with UIC 552, the proven ZH and ZS Series connectors have been the stock items of the Schaltbau product range for the railway industry since decades. Rail vehicles equipped with a train line, such as passenger trains and multiple units, do need jumpers like these to rely on for smooth operation in the harsh railway environment.

The connector complies with railway standard UIC 558 VE. It connects lines used for remote control of lights, doors and public address systems in passenger coaches or multiple unit trains. It is also suitable for transmission of binary data, e.g. CAN bus. A new replacement insert will reduce maintenance and downtimes considerably. Usually, if it is necessary to replace worn contacts, you have to cut the old cable in order to replace the insert. Now, there is no need of rewiring any longer. All you need do is exchange the replacement insert of the 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
- Keying prevents connectors from mismating with connectors carrying different inserts
- 13 pole plug intermateable with 18 pole receptacle in accordance with UIC 558 VE
- Approvals: ECE

*Features*
- Break-away connector
- Interface connector that offers reliable Ethernet data transmission (Ethernet)
- 2x 8-pole Gigabit Ethernet module, shell orange
- 1x 8-pole Gigabit Ethernet module + 16 signal contacts, shell yellow
- 1x 8-pole Gigabit Ethernet module, shell 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, traveler and passenger information systems, automatic passenger counters, voice control systems and diagnosis
- Break-away connector in compliance with IRS 50558
- Approvals: ECE

*Specifications*

<table>
<thead>
<tr>
<th>Number of contacts</th>
<th>ZH(UIC 552)</th>
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<td>4 + 2 = 1 (2)</td>
<td>1</td>
<td>13 / 18 / 22+PE</td>
<td>100 V</td>
</tr>
<tr>
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</tr>
<tr>
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<tr>
<td>10,000</td>
<td>10,000</td>
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**Series UIC558 VE**

The Series UIC558 VE is designed to ensure the electrical connection in the railway industry since decades. Rail vehicles equipped with a train line, such as passenger trains and multiple units, do need jumpers like these to rely on for smooth operation in the harsh railway environment.

The connector complies with railway standard UIC 558 VE. It connects lines used for remote control of lights, doors and public address systems in passenger coaches or multiple unit trains. It is also suitable for transmission of binary data, e.g. CAN bus. A new replacement insert will reduce maintenance and downtimes considerably. Usually, if it is necessary to replace worn contacts, you have to cut the old cable in order to replace the insert. Now, there is no need of rewiring any longer. All you need do is exchange the replacement insert of the 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
- Keying prevents connectors from mismating with connectors carrying different inserts
- 13 pole plug intermateable with 18 pole receptacle in accordance with UIC 558 VE
- Approvals: ECE

*Features*
- Break-away connector
- Interface connector that offers reliable Ethernet data transmission (Ethernet)
- 2x 8-pole Gigabit Ethernet module, shell orange
- 1x 8-pole Gigabit Ethernet module + 16 signal contacts, shell yellow
- 1x 8-pole Gigabit Ethernet module, shell 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, traveler and passenger information systems, automatic passenger counters, voice control systems and diagnosis
- Break-away connector in compliance with IRS 50558
- Approvals: ECE

*Specifications*

<table>
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<tr>
<th>Number of contacts</th>
<th>UIC 558 VE</th>
<th>UIC-IT</th>
</tr>
</thead>
<tbody>
<tr>
<td>13 / 18 / 22+PE</td>
<td>100 V</td>
<td>50 V</td>
</tr>
<tr>
<td>1x orange, 1x yellow, 1x green</td>
<td>10 A</td>
<td>1 A</td>
</tr>
</tbody>
</table>

**Series UIC-IT**

The UIC-IT Series connector is fitted with one or two 8-pole Gigabit Ethernet (GbE) module and 16 optional signal contacts providing a highly flexible, universal and reliable Ethernet connection. With a design life that will last for decades it is the best option for the harsh railway environment.

*Features*
- Break-away connector
- Interface connector that offers reliable Ethernet data transmission (Ethernet)
- 2x 8-pole Gigabit Ethernet module, shell orange
- 1x 8-pole Gigabit Ethernet module + 16 signal contacts, shell yellow
- 1x 8-pole Gigabit Ethernet module, shell 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, traveler and passenger information systems, automatic passenger counters, voice control systems and diagnosis
- Break-away connector in compliance with IRS 50558
- Approvals: ECE

*Specifications*

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<td>100 V</td>
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<td>1x orange, 1x yellow, 1x green</td>
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</tr>
</tbody>
</table>
Electrical Components and Systems for Railway Engineering and Industrial Applications

Connectors manufactured to industry standards
Connectors to suit the special requirements of communications engineering (MIL connectors)
Charging connectors for battery-powered machines and systems
Connectors for railway engineering, including UIC connectors
Special connectors to suit customer requirements

Snap-action switches with positive opening operation
Snap-action switches with self-cleaning contacts
Enabling switches
Special switches to suit customer requirements

Single and multi-pole DC contactors
High-voltage AC/DC contactors
Contactors for battery powered vehicles and power supplies
Contactors for railway applications
Terminal bolts and fuse holders
DC emergency disconnect switches
Special contactors to suit customer requirements

Equipment for driver’s cab
Equipment for passenger use
High-voltage switchgear
High-voltage heaters
High-voltage roof equipment
Equipment for electric brakes
Design and engineering of train electrics to customer requirements