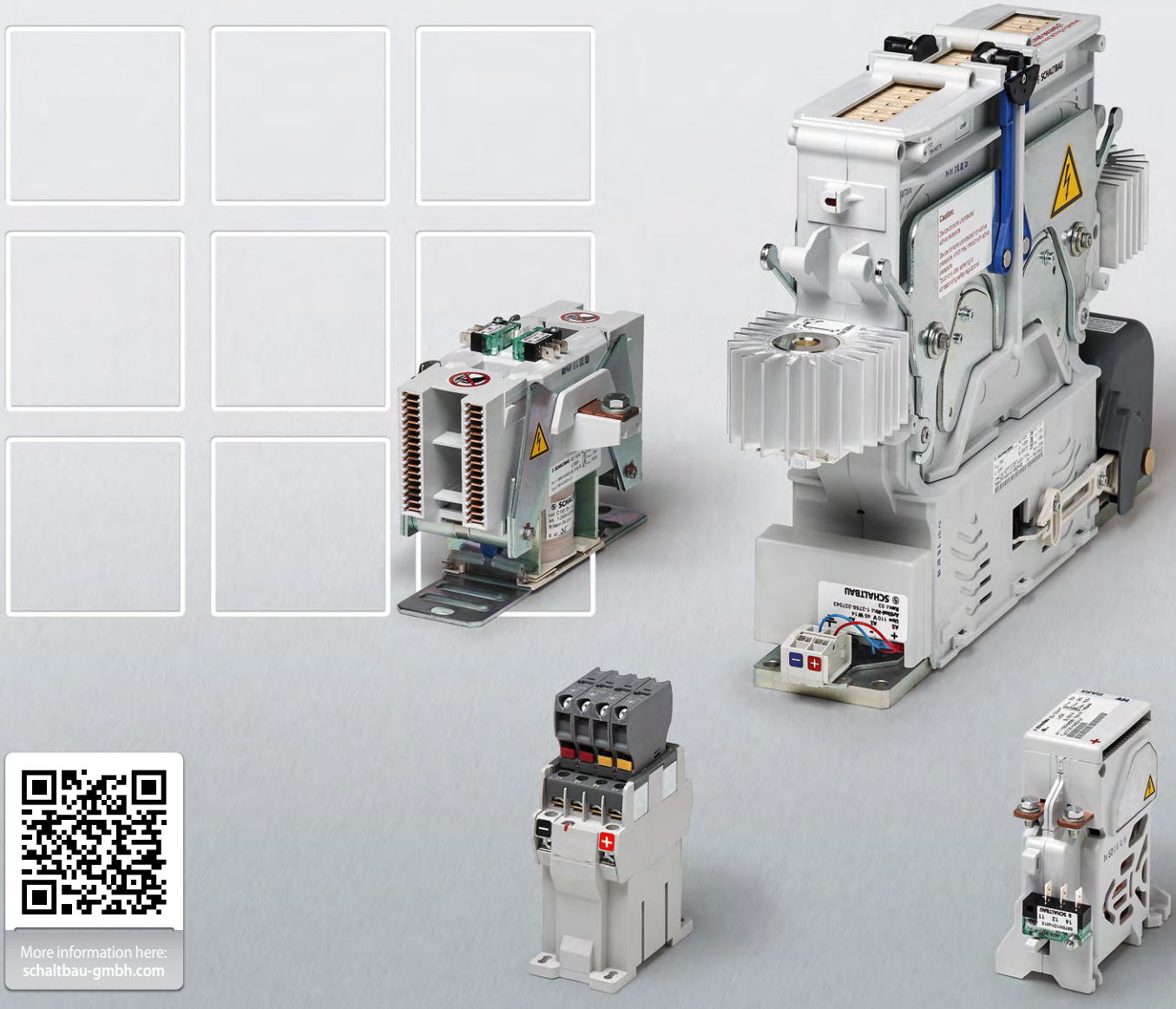
SCHALTBAU
Connect Contact Control

3

Brochure Contactors

Contactors for industry, rolling stock
and battery-powered vehicles
Emergency disconnect switches



More information here:
schaltbau-gmbh.com

WE CONTROL ELECTRIC ARCS RELIABLY

The quality of a contactor is best seen when switching off. Electric arcs are ignited between the contacts as they open – just like lightning bolts in a thundercloud. In order to extinguish these arcs we have developed a patented contactor concept by which the arc is driven into the arc chute and extinguished within a few milliseconds. Thus Schaltbau can offer real equipment safety. For the innovative contactor technology prevents the contacts from welding or burning and the equipment from being totally destroyed as a result of a component failure.

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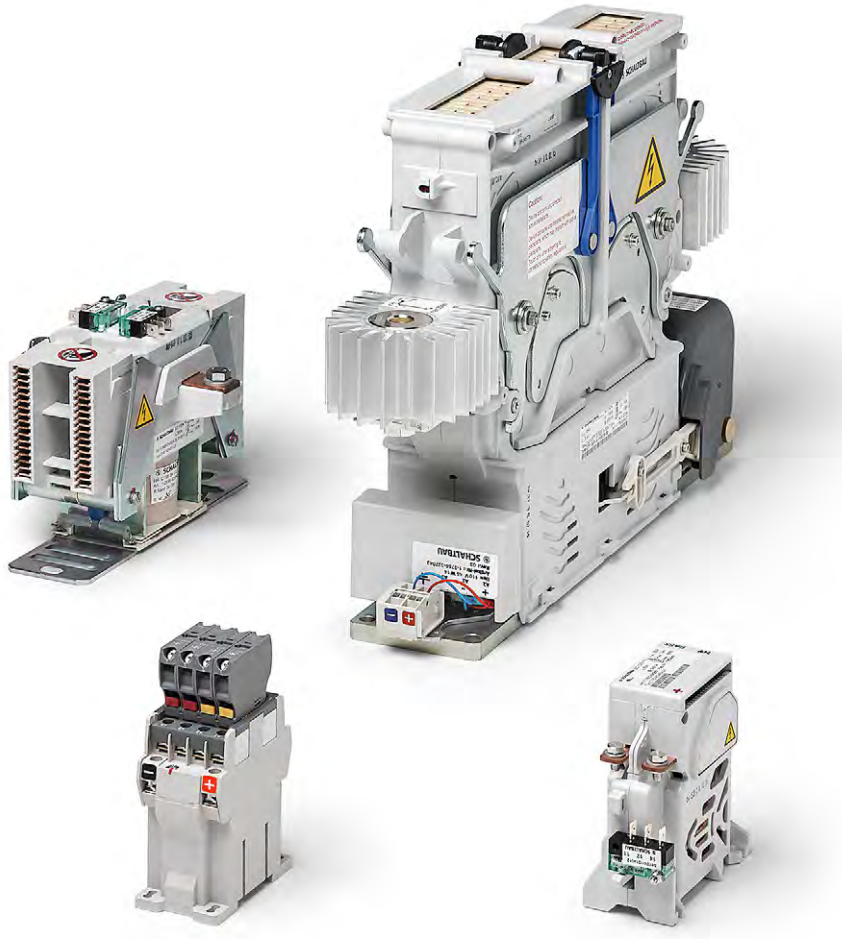
CONTACTORS FOR RAILWAY AND INDUSTRIAL APPLICATIONS

With a view to the special requirements of railway engineering, Schaltbau has developed sophisticated solutions for extinguishing electric arcs and successfully introduced them into the market.

The know-how and technology of railway contactors formed the basis of the expansion of the product line to cover industrial applications, such as photovoltaic systems and wind turbines, computer and UMTS backup systems, electric vehicles and industrial trucks.



For more information visit
www.schaltbau.info/contactors

GLOSSARY

Switchgear General term for any switchgear and its combinations with pertaining control, measuring, protection and regulating equipment, as well as for subassemblies from such equipment and devices and the respective connections, accessories, housings and support frames mainly used for generating, transmitting, distribution and conversion of electrical energy. [IEV 441-11-02]

Contactor Mechanical switching device with one free position only, not actuated manually and capable of connecting, carrying and disconnecting currents in the circuit under operating conditions, overloads included. [IEV 441-14-33].

Actuating system The actuating system of a contactor operates electromagnetically.

Main contact Contact being located inside the main circuit of a mechanical switching device which is to carry the current of the main circuit when the contact is closed. [IEV 441-15-07]

Auxiliary contact Contact being located inside an auxiliary circuit and actuated mechanically by the switching device. [IEV 441-15-10]

Normally open contact (make contact)
The contact closes when the switch is actuated.

Normally closed contact (break contact)
The contact opens when the switch is actuated.

SPDT (changeover contact) In free position terminal COM is connected to terminal NC. When the switch is actuated the contact is interrupted between COM and NC and closed between COM and NO.

Pollution degree The pollution degree of the environment is a conventional characteristic depending on the quantity of conductive or humidity absorbing dust, ionized gas or salt, as well as on the relative humidity and the frequency of its occurrence, resulting in absorption or condensation of humidity leading to a decrease of withstand voltage and/or surface resistance. Note: Standard IEC 60947-1 states the pollution degree to be that of the micro-environment.

Overvoltage category The overvoltage category of a circuit or an electrical system is a conventional characteristic depending on the limitation (or control) of the amount of the prospective transient overvoltages occurring in a circuit or an electrical system of differing nominal voltages and on the equipment having an impact on these overvoltages. Note: In an electrical system the change to a lower overvoltage category is brought about by suitable devices meeting the requirements of the interface, such as overvoltage arresters or line filters blocking, absorbing or eliminating the overvoltage energy in order to lower the value of the transient overvoltages to the next lowest category.

Nominal voltage U_n Approximated voltage value suitable for identification of a device which in contrast to the rated operating voltage is not determined for a given operating condition.

Rated insulation voltage U_i The rated insulation voltage of a device is the very voltage which insulating tests and creepage distances refer to. The maximum rated operating voltage must by no means exceed the rated insulation voltage..

Rated impulse withstand voltage U_{imp} Peak value of an impulse withstand voltage of determined shape and polarity which the equipment can handle without failure under given test conditions and which clearance refers to. The rated impulse withstand voltage of a device must equal or exceed the transient overvoltages occurring in the system in which the device is used.

Coil voltage U_s The standard term is rated control supply voltage. It is distinguished between actuating voltage Uc for control circuit entry and the control supply voltage Us, the voltage which is supplied to the power supply terminals of the control device and which can differ from Uc due to built-in transformers, rectifiers, resistors, electronic circuits, etc.

Conventional thermal current Ith The conventional free air thermal current (standard term) is the highest test current for temperature-rise tests of non-enclosed devices in open air. The conventional free air thermal current must equal at least the maximum rated operating current of the non-enclosed device at 8 hours duty. "Free air" means air of usual interior rooms almost free of draught and radiation. Note: A non-enclosed device is one supplied without enclosure by the manufacturer or a device with integrated housing which usually does not provide protection all alone.

Contactors for railway applications with extended coil tolerances according to railway standard EN 60077-1 requiring a voltage range of 0.7 up to 1.25 Us for equipment which is supplied from a battery on and off float charge.

Breaking capacity The breaking capacity of a switching device or a fuse is the prospective current a switching device or a fuse can break at a certain voltage under given conditions. [IEV 441-17-08]. Note: The voltage and the given conditions are determined in the applicable detail specification. For AC current the current is determined by the r.m.s.-value of the symmetrical current component

Making capacity The making capacity of a switching device is the prospective making current a switching device can make under given conditions for use and operation [IEV 441-17-09]. Note: The voltage and the given conditions are determined in the applicable detail specification.

Excerpts from DIN EN 60947-1 (VDE 0660-100) and DIN EN 60947-4-1 (VDE 0660-102) respectively are reprinted with permission 072.008 of DIN Deutsches Institut für Normung e.V. and of VDE Verband der Elektrotechnik Elektronik Informationstechnik e.V.. The applicable standard always refers to the latest up-dates available at VDE VERLAG GMBH, Bismarckstr. 33, 10625 Berlin, www.vde-verlag.de, and at Beuth Verlag GmbH, Burggrafenstr. 6, 10787 Berlin.

SPECIFICATIONS :: CONTATORS

Series ▶	C137, C163, C164, C165	CS115/10	C152 ... C159	C160, C162	C193	C195	C294	C295
Type of voltage bidirectional	DC / AC	DC	DC / AC	DC / AC	DC / AC	DC / AC C195 X	DC	DC / AC
Battery voltages	✓	✓	✓	✓	✓	C195 S, C195 W	---	✓
up to 1,000 V	---	---	C155, C156, C157	C162	✓	C195 A, C195 B	✓	✓
up to 1,500 V	---	---	---	---	---	C195 X	---	✓
up to 3,000 V	---	---	---	---	---	---	---	---
Main contacts Number of Configuration	1 or *1	4 */ *3	1 / 2 / 3 / 4 *2 / *3	1	1	1 or	2	2
Aux. contacts Number of Configuration	1	1 ... 4	1 ... 4	1 ... 6	1	2 max.	1	2
Range of application								
Industry	✓	✓	✓	✓	✓	✓	✓	✓
Energy	---	---	✓	✓	✓	✓	✓	✓
Material Handling	✓	---	---	---	---	---	---	---
Transportation Technology	✓	✓	✓	✓	✓	✓	✓	✓
Operating cycles	> 3 million	2 million	2 million	5 million	5 million	> 3 million	> 3 million	> 3 million
Page	6	6	7	7	8	8	9	9

**1 No switching of loads with the NC contact*
**2 C158 only one main contact*
**3 NC or NO contacts available*
**4 CH715: no aux. contact (CH815: 1 aux. contact); CH500: no aux. contact (CH800: 1 aux. contact, CH801: 2 aux. contacts); CH1030: 1 aux. contact*

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RoHS 2011/65/EC

Schaltbau GmbH manufactures in compliance with RoHS.

IRIS Certification

The production facilities of Schaltbau GmbH have been IRIS certified since 2008.

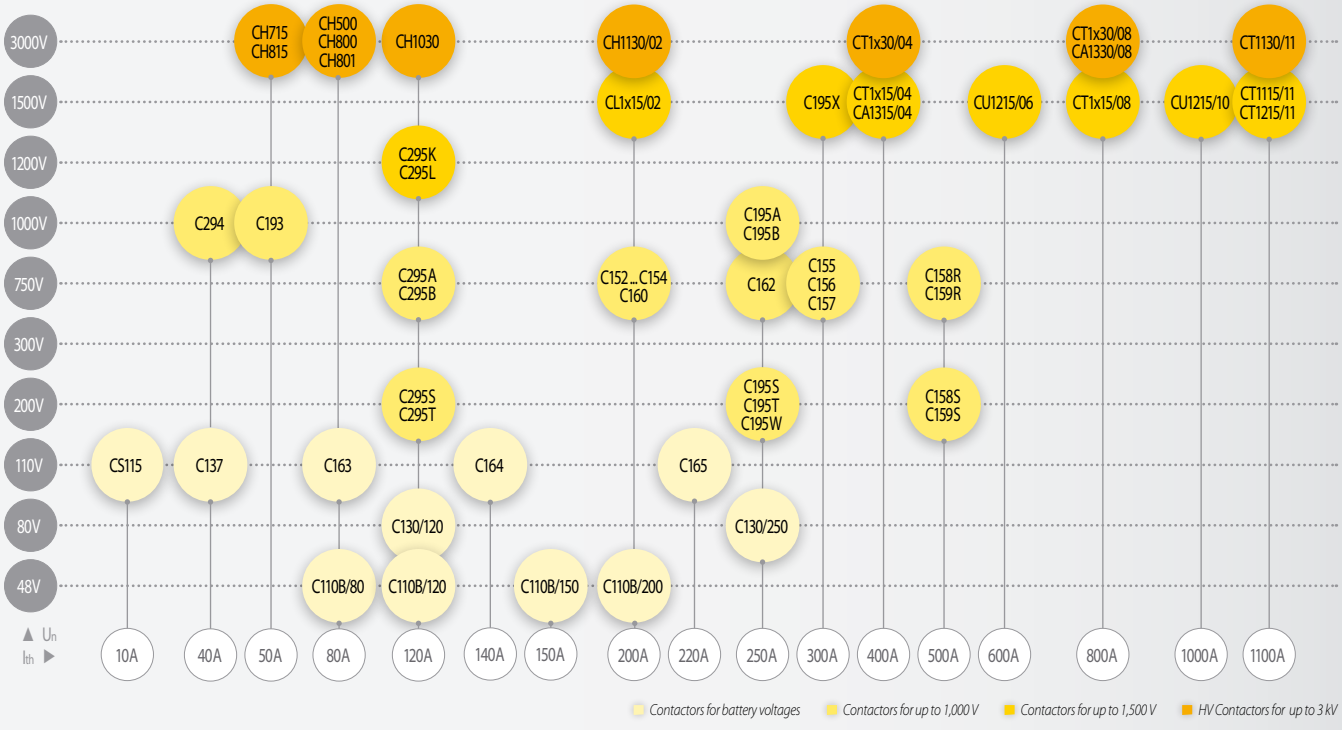
Schaltbau GmbH ISO 14001 certified since 2002

Certified to DIN EN ISO 14001 since 2002. For the most recent certificate visit our website.

Schaltbau GmbH ISO 9001 certified since 1994

Certified to DIN EN ISO 9001 since 1994. For the most recent certificate visit our website.

CONTACTORS :: OVERVIEW



CONTACTORS :: SPECIFICATIONS

CH715, CH500, CH1030*4	CH1130/02	CL1x15/02	CA1315/04, CA1330/08	CU1215/06, CU1215/10	CT1x15/04-/08-/11, CT1x30/04-/08-/11	C110B/80, -/120, C110B/200, -/300	C130/180, C130/250	◀ Series
DC / AC	DC / AC	DC / AC	AC (f ≤ 400 Hz) ✓	DC	DC / AC ✓	DC ✓	DC / AC	Type of voltage bidirectional
---	---	---	---	---	---	✓	✓	Battery voltages
---	---	---	---	---	---	---	---	up to 1,000 V
---	---	✓	✓	---	---	---	---	up to 1,500 V
✓	✓	---	---	✓	✓	---	---	up to 3,000 V
1	1	1 / 2 / 3	3	2	1 / 2	1	1	Main contacts Number of Configuration
2 max.*4	2 max.	2	4 max. or	4 max. or	4 max. or	1	1	Aux. contacts Number of Configuration
✓	✓	✓	✓	---	✓	✓	---	Range of application Industry
---	---	✓	---	✓	✓	---	---	Energy
---	---	---	---	---	---	✓	✓	Material Handling
✓	✓	✓	✓	---	✓	---	---	Transportation Technology
1 million	> 2 million	> 3 million	> 250,000	> 2 million	> 2 million	> 1 million	> 3 million	Operating cycles
10	10	11	11	12	12, 13	14	14	Page

C137, C163, C164, C165

Single pole DC contactors for battery voltages up to 110 V

C137 through C165 Series contactors are suitable for handling DC loads in the range of 40 A to 220 A for the most common coil voltages up to 110 V. Version »C« are single pole NO contactors with magnetic blowout whereas version »H« are single pole changeover contactors. The switching devices can be used as main or auxiliary contactors.

CS115/10

4 pole universal contactors for battery voltages up to 110 V

The 10 A control contactor for battery voltages up to 110 V is available with the following contact arrangements: 4 NO, 3 NO/1 NC or 2 NO/2 NC. Optionally up to 4 snap-on auxiliary switches can be mounted on it. The contactor is especially designed for controlling low and medium loads in battery networks, such as switching on and off, locking, signalling and controlling power contactors.

FEATURES

- Compact design
- Double-break contacts
- Easy to replace main contacts
- Blowout magnets
- 2 coil versions:
  - for industrial applications, coil tolerance -30 % ... +10 %
  - for railway applications, coil tolerance -30 % ... +25 %

- Compact, rugged design, DIN rail mounting
- Double-break contacts
- Possible configuration of main contacts: 4 NO, 3 NO/1 NC or 2 NO/2 NC
- NC or NO auxiliary switches available
- Conventional thermal current 10 A
- 2 coil voltages for:
  - Industrial applications, coil tolerance -30 % ... +10 %
  - Railway applications, extended coil tolerance -30 % ... +25 %

Catalogue **B60.*en***

Catalogue **C50.*en***

SPECIFICATIONS

	C137 – C163 – C164 – C165	CS115/10
Type of voltage	DC, AC	DC
Main contacts Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}	 1x SPST-NO or 1x SPDT 110 V 160 V 2.5 kV	 4 NO, 3 NO/1 NC or 2 NO/2 NC 110 V 150 V 1.5 kV
Pollution degree Overvoltage category	PD3 OV3	PD3 OV2
Conv. thermal current I_{th}	50 A*1/40 A*2 – 100 A*1/80 A*2 – 140 A*2 – 220 A*2	10 A*2
Aux. contacts Number of, Configuration	 1x SPDT, optional	 4 max. x NO/NC, optional
Range of application Industry Rolling stock	 ✔ – Battery voltages ✔ – Battery voltages	 ✔ – Battey voltages ✔ – Battey voltages
Coil voltage U_s	24 / 36 / 48 / 72 / 80 / 110 V DC	24 / 36 / 72 / 110 V DC

*1 Conv. thermal current I_{th} at $T_a = 40°C$ *2 Conv. thermal current I_{th} at $T_a = 70°C$

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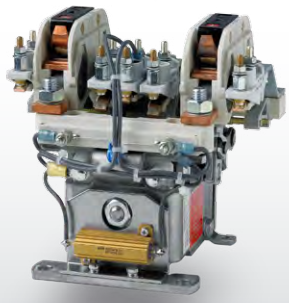


C152, C153, C154, C155, C156, C157, C158, C159

Multi-pole cam contactors for voltages up to 750 V or battery voltages

Contactors fitted with S306, S307 or S310 Series cam switch elements and with main contacts configured as NO, NC or SPDT contacts. Permanent-magnetic blowout and arc chamber for DC operation.

Versatile series. Well-proven as line contactor, changeover unit and reverser. Suitable for use in control circuits of electric equipment for rolling stock and industrial applications as well as for battery powered vehicles.

C160, C162

Single pole cam contactors for voltages up to 750 V or battery voltages

Schaltbau C160 and C162 Series cam contactors are supplied as single pole NO contactors. Cam switch elements are used as main contacts for DC and AC operation together with magnetic blowout for DC applications and auxiliary contacts.

The contactors are of compact design, feature double-break main contacts, and are known for their reliability. Schaltbau cam contactors are used in large numbers in industrial and railway applications.

FEATURES

- Rugged design
- Various combinations of switching elements (4 main / 4 auxiliary max.)
- Easy to replace switching elements
- Double-break contacts
- Coil tolerance -30% ... +25%
- Coil economy circuit
- Parallel connection: 800 A max.

- Double-break contacts, cadmium-free
- Various combinations of 6 auxiliary switches max.
- Easy to replace switching elements
- Coil tolerance -30% ... +25%

Catalogue **B90.*en***

Catalogue **B80.*en***

SPECIFICATIONS

C152 – C153 – C154 – C155 – C156 – C157 – C158 – C159	C160 – C162	
DC, AC	DC, AC	**Type of voltage**
2x / 3x / 4x SPST-NO or SPST-NC 450 V or 750 V 630 V or 1,000 V	1x SPST-NO 450 V or 750 V 630 V or 1,000 V	**Main contacts** Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}
PD3 OV3	PD3 OV3	Pollution degree Overvoltage category
160 A*2 – 200 A*2 – 250 A*2 – 300 A*2 – 500 A*2	160 A – 200 A – 250 A*2	Conv. thermal current I_{th}
4 max., optional	6 max., optional	**Aux. contacts** Number of, Configuration
✔ – Voltages ≤1,000 V ✔ – Auxiliaries/ HVAC / Motor	✔ – Voltages ≤1,000 V ✔ – Auxiliaries / HVAC	**Range of application** Industry Rolling stock
12 / 24 / 48 / 60 / 80 / 96 / 110 / 220 V DC	12 / 24 / 48 / 60 / 80 / 96 / 110 V DC	**Coil voltage U_s**

C193

Compact single pole NO contactors for voltages up to 1,000 V

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 V.

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.

C195

Compact single pole contactors for voltages up to 1,500 V

Being of compact size and featuring double-break contacts that are covered for the most part, the C195 Series contactors provide high-performance current breaking. Their high contact force improves electrical performance and reliability even under harsh ambient conditions.

There is also the option of a SPDT version of the C195 which has an added galvanically isolated NC contact.

FEATURES

- Very compact design
- Suitable for years of continuous duty
- Intended for high ambient temperatures
- Double-break contacts
- Versions for AC and DC operation
- DC versions with blowout magnets
- DIN rail mount option

- Suitable for years of continuous duty
- Intended for high ambient temperatures
- Double-break contacts
- Versions for AC and DC operation
- DC versions with magnetic blowout

Catalogue **B193.*en***

Catalogue **B195.*en***

SPECIFICATIONS

	C193	C195
Type of voltage	DC, AC	DC (C195 X bidirectional), AC
Main contacts Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}	 1x SPST-NO 1,000 V 1,200 V 8 kV	 1x SPST-NO or 1x SPDT C195: NO: 1,000 V max. / SPDT: 200 V / C195 X: 1,500 V C195: NO: 1,200 V / SPDT: 600 V / C195 X: 1,800 V NO: 8 kV / SPDT: 6 kV
Pollution degree Overvoltage category	PD3 OV3	PD3 OV3
Conv. thermal current I_{th}	50 A*1	C195: 250 A*1 / C195 X: 300 A*1
Aux. contacts Number of, Configuration	 1x SPDT, optional	 2x SPDT, optional
Range of application Industry Rolling stock	 ✔ – Votages ≤1,000 V ✔ – Auxiliaries / HVAC	 ✔ – Battery voltages / Voltages ≤1,500 V ✔ – Battery voltages / Auxiliaries / HVAC
Coil voltage U_s	24 / 36 / 48 / 72 / 80 / 110 V DC	24 / 36 / 48 / 72 / 80 / 110 V DC

*1 Conv. thermal current I_{th} at T_a = 70°C

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C294

Compact double pole NO contactors for voltages up to 1,000 V

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 V.
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.

C295

Double pole NO contactors for voltages up to 1,200 V

With its compact size and efficient arc chute our C295 Series contactor allows the handling of voltages up to 1,200 V and currents of 120 A 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.

FEATURES

- Very compact design
- Suitable for years of continuous duty
- Intended for high ambient temperatures
- Double-break contacts
- DC versions with magnetic blowout

- Compact, rugged design
- 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

Catalogue **B294.*en***

Catalogue **B295.*en***

SPECIFICATIONS

C294	C295 A / ...B – C295 K / ...L – C295 S / ...T	
DC	DC, AC	**Type of voltage**
2x SPST-NO 1,000 V 1,200 V 8 kV	2x SPST-NO 750 V – 1,200 V – 200 V 1,000 V – 1,600 V – 1,000 V 8 kV – 10 kV – 8 kV	**Main contacts** Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}
PD3 OV3	PD3 OV3	Pollution degree Overvoltage category
40 A*1	120 A*1	Conv. thermal current I_{th}
1x SPDT, optional	2x SPDT, optional	**Aux. contacts** Number of, Configuration
✔ – Voltages ≤1,000 V ✔ – Auxiliaries / HVAC	✔ – Votages ≤1,000 V ✔ – Auxiliaries / HVAC	**Range of application** Industry Rolling stock
24 / 36 / 72 / 110 V DC	24 / 36 / 48 / 60 / 72 / 96 / 110 V DC	**Coil voltage U_s**

CH715, CH815, CH500, CH800, CH801, CH1030

High-voltage contactors up to 3 kV DC / 1.5 kV AC

The single pole high-voltage contactors are designed for nominal loads of 50 kW (AC and DC). They are suitable for application as main contactors in power supplies and as control contactors for resistor banks in heating and air conditioning equipment. Double-break contacts ensure safe turn off. Arc suppression is accomplished in the attached arc chute.

CH1130/02

High-voltage contactors up to 3 kV DC / AC

Schaltbau has introduced an update of its CH Series high-voltage contactors which have proven their worth in industrial and railway applications for decades. Its completely modernized design is comparable to the one of the most successful CT series.
The switching device is especially suited for use as pre-charging and switch-on contactor in power supplies and as control contactor for resistor banks in heating and air conditioning equipment

FEATURES

- Compact design
- Double-break contacts
- Coil tolerance: -30% .... +25%
- Designed for nominal loads of 50 kW AC / DC
- Range of applications:
  - Load switching in power supply systems
  - Main and control contactor for air-conditioning and heating systems

- Compact, rugged design
- Double-break contacts
- Use of ceramic elements for extinguishing the arc
- Easy visual inspection of state of contacts (no tools)
- CH1130/02 replacing the 4 existing CH contactor series
- Range of applications:
  - Load switching in power supply systems
  - Main and control contactor for air-conditioning and heating systems

Catalogue **F170.*en***

Catalogue **C170.*en***

SPECIFICATIONS

	CH715 – CH815 – CH500 – CH800 – CH801 – CH1030	CH1130/02
Type of voltage	DC, AC	DC, AC
Main contacts Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}	 1x SPST-NO 3 kV DC / 1.5 kV AC CH715, CH815: 3 kV / CH500, CH800, CH801, CH1030: 5 kV CH715, CH815: 15 kV / CH500, CH800, CH801, CH1030: 30 kV	 1x SPST-NO 3.0 kV 4.8 kV 25 kV
Pollution degree Overvoltage category	PD3 OV3	PD3 OV3
Conv. thermal current I_{th}	CH715, CH815: 50 A*1 / CH500...CH801: 80 A*1 / CH1030: 120 A*1	200 A
Aux. contacts Number of, Configuration	1x / 2x SPDT, optional*2	2x S826, silver, DC13/110 V: 0.2 A, 24 V: 2 A
Range of application Industry Rolling stock	✔ – High voltages >1,000 V ✔ – Auxiliaries / HVAC	✔ – High voltages >1,000 V ✔ – Auxiliaries / HVAC
Coil voltage U_s	24 / 72 / 110 / 120 V DC	24 / 36 / 72 / 110 V DC

*1 Conv. thermal current I_{th} at T_a = 70°C *2 CH500, CH715: no aux. contact; CH800, CH815: 1 aux. contact); CH801, CH1030: 2 aux. contacts

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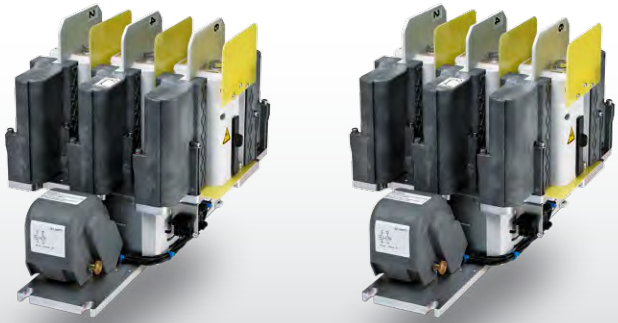


CL1115/02, CL1215/02, CL1315/02

1, 2 and 3 pole NO contactors for voltages up to 1,500 V

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 AC and DC railway networks. The switching devices guarantee reliable, low-wear switching of nominal voltages up to 1,500 V.

CA1315/04, CA1330/08

3 pole AC traction contactors for permanent magnet traction motors

With the CA contactor series Schaltbau is introducing an innovative contactor concept to the market. It ensures the reliable disconnection of the motors from the traction inverter of electric multiple units. Disconnecting the motors becomes necessary in the event of a short-circuit in the output circuit of the inverter in order to prevent the drive from being blocked.
The outstanding feature of this new contactor series is the controlling of modern traction motors with frequencies up to 400 Hz!

FEATURES

- 1, 2 and 3 pole versions
- Double-break NO contact
- Versions for AC and DC operation
- DC versions with magnetic blowout
- Compact, rugged design
- Drives with coil tolerances according to railway standard
- Low maintenance and long life

- Innovative design: compact, rugged, reliable
- High short-circuit breaking capacity for frequencies up to 400 Hz
- 3 pole version
- Double-break contacts
- Easy maintenance
- Drive with coil tolerance according to railway standard
- Standard: EN 60077

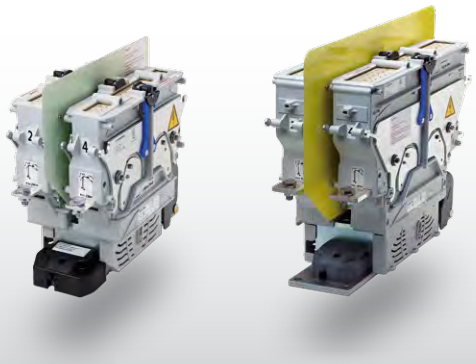
Catalogue **C25.*en***

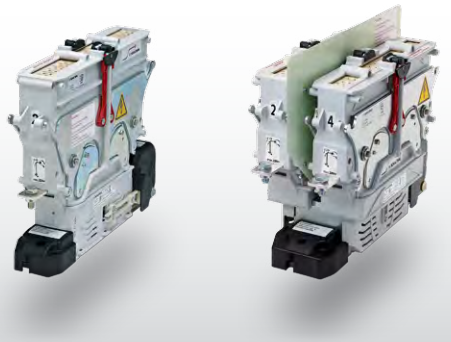
Catalogue **C28.*en***

SPECIFICATIONS

CL1115/02 – CL1215/02 – CL1315/02	CA1315/04 – CA1330/08	
DC, AC	AC (f ≤ 400 Hz)	**Type of voltage**
1x, 2x, 3x SPST-NO 1,500 V 2,200 V 12 kV	3x SPST-NO CA1315/04: 1,500 V / CA1330/08: 3,000 V CA1315/04: 2,000 V / CA1330/08: 3,000 V CA1315/04: 15 kV / CA1330/08: 15 kV	**Main contacts** Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}
PD3 OV3	PD3 OV3	Pollution degree Overvoltage category
250 A*1 / 200 A*3	350 A*1 – 800 A*1	Conv. thermal current I_{th}
2x SPDT	4x SPDT, max.	**Aux. contacts** Number of, Configuration
✔ – High voltages >1,000 V ✔ – Auxiliaries / HVAC / Traction inverters	✔ – Traction motors ✔ – Traction motors	**Range of application** Industry Rolling stock
24 / 72 / 110 V DC	72 / 110 V DC	**Coil voltage U_s**

*3 Conv. thermal current I_{th} at T_a = 40°C / T_a = 70°C *4 Special design





CU1215/06, CU1215/10

Double pole DC power contactors for power supply and UPS systems

With the double pole contactors CU1215/06 Schaltbau is expanding its product range of new and innovative switching devices ranging up to performance class 600 A.

The CU series power contactors are especially designed for central inverters of PV installations and wind turbines as well as power supply and UPS systems.

The contactors guarantee reliable, low-wear switching of high loads. The double-coil drive reduces efficiently power consumption in continuous operation.

CT1115/04, CT1215/04, CT1130/04, CT1230/04

1 and 2 pole power contactors for AC and DC Power rating of 1,500 V/400 A and 3,000 V/400 A

Owing to a new blowout technology, CT1000 contactors can be used in almost any AC or DC railroad network. It also ensures a very low-wear and reliable switching behaviour wherever the contactor is used, even under very difficult switching conditions.

Different styles for 1.5 kV and 3 kV allow for the optimal adaptation of CT1000 contactors to global railway applications.

FEATURES

- Double-break NO contacts
- Unidirectional power contactor for:
  - Power supply and UPS systems
  - Photovoltaic installations
- Compact, rugged design
- 2 different switching capacities
- Double coil requires less holding power
- Low maintenance
- Long life
- Standards IEC 60947, UL 60947

- Contactors for 400 A current rating
- Nominal voltage 1.5 kV or 3 kV
- Combination of permanent-magnetic and electromagnetic blowout
- Compact, rugged design
- 2 different switching capacities
- Double-break contacts, cadmium-free
- 1 and 2 pole versions
- Extended coil tolerance according to railway standard, no economy circuit necessary
- Standard: IEC 60077

Catalogue **C22.*en***

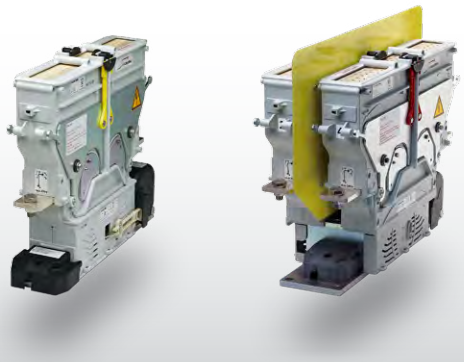
Catalogue **C20.*en*** **C21.*en***

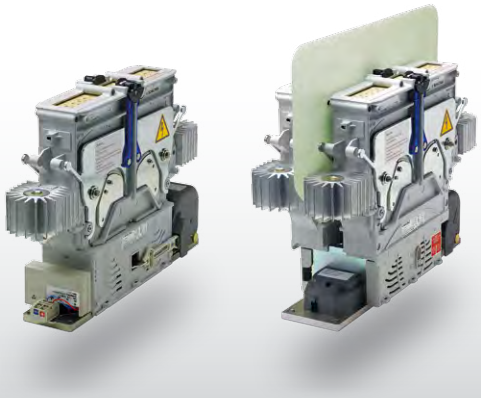
SPECIFICATIONS

	CU1215/06	CT1115/04 – CT1215/04 – CT1130/04 – CT1230/04
Type of voltage	DC	DC bidirectional, AC
Main contacts		
Number of, Configuration	2x SPST-NO	1x, 2x SPST-NO
Nominal voltage U_n	1,500 V	1.5 kV – 3 kV
Rated insulation voltage U_i	3 kV	3 kV – 4.8 kV
Rtd impulse withstand voltage U_{Ni}/U_{imp}	15 kV	15 kV – 25 kV
Pollution degree	PD3	PD3
Overvoltage category	OV3	OV3
Conv. thermal current I_{th}	600 A*1	400 A*1
Aux. contacts		
Number of, Configuration	1x NC, 1x NO, 2x SPDT	1x NC, 1x NO, 2x SPDT
Range of application		
Industry	✔ – High voltages >1,000 V	✔ – High voltages >1,000 V
Rolling stock	---	✔ – Traction inverters
Coil voltage U_s	24 / 110 V DC	24 / 110 V DC

*1 Conv. thermal current I_{th} at T_a = 70°C

SCHALTBAU
Connect Contact Control





CT1115/08, CT1215/08, CT1130/08, CT1230/08

1 and 2 pole power contactors for AC and DC
Power rating of 1,500 V/800 A and 3,000 V/800 A

Owing to a new blowout technology, CT1000 contactors can be used in almost any AC or DC railroad network. It also ensures a very low-wear and reliable switching behaviour wherever the contactor is used, even under very difficult switching conditions.
Different styles for 1.5 kV and 3 kV allow for the optimal adaptation of CT1000 contactors to global railway applications.

CT1115/11, CT1215/11

1 and 2 pole traction contactors for AC and DC
Power rating of 1,500 V/1,100 A

With a power rating of 1,100 A the new CT1115/11 and CT1215/11 resp. is an upgrade of the CT power contactor series. Featuring heat sinks mounted to its main terminals, a double winding coil with electronic coil controller, and a stronger spring for higher contact forces, the contactor is capable of generating less heat and carrying the 1,100 A continuously. And allowing for both vertical and horizontal mounting, the new traction contactor can be much better adapted to the installation situation at the customer.

FEATURES

- Contactors for 800 A current rating
- Nominal voltage 1.5 kV or 3 kV
- Combination of permanent-magnetic and electromagnetic blowout
- Compact, rugged design
- 2 different switching capacities
- Double-break contacts, cadmium-free
- 1 and 2 pole versions
- Extended coil tolerance according to railway standard, no economy circuit necessary
- Standard: IEC 60077

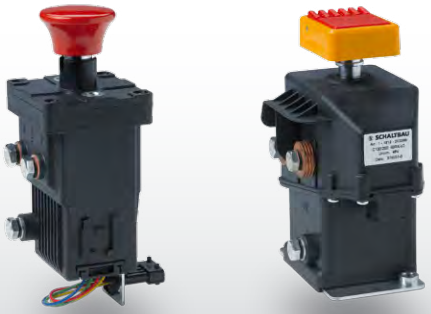
- Contactors for 1,100 A current rating
- Nominal voltage 1.5 kV
- Single pole version with heat sinks mounted to main terminals
- Double-break NO contacts
- Double winding coil and electronic coil controller
- Visual inspection and easy replacement of contact pieces and arc chute
- Standard: Tested to railway standard IEC 60077

Catalogue **C20.*en*** **C21.*en***

Catalogue **C20-2.*en***

SPECIFICATIONS

CT1115/08 – CT1215/08 – CT1130/08 – CT1230/08	CT1115/11 – CT1215/11	
DC bidirectional, AC	DC bidirectional, AC	**Type of voltage**
1x, 2x SPST-NO 1.5 kV – 3 kV 3 kV – 4.8 kV 15 kV – 25 kV	1x, 2x SPST-NO 1.5 kV – 3 kV 3 kV – 4.8 kV 15 kV – 25 kV	**Main contacts** Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}
PD3 OV3	PD3 OV3	Pollution degree Overvoltage category
800 A*[1]	1,100 A*[1]	Conv. thermal current I_{th}
1x NC, 1x NO, 2x SPDT	1x NC, 1x NO, 2x SPDT	**Aux. contacts** Number of, Configuration
✔ – High voltages >1,000 V ✔ – Traction inverters	✔ – High voltages >1,000 V ✔ – Traction inverters	**Range of application** Industry Rolling stock
24 / 110 V DC	24 / 110 V DC	**Coil voltage U_s**



C110B/80, C110B/120, C110B/200, C110B/300

Battery contactors to meet the requirements of industrial trucks

C110B Series contactors are the easy and economical solution for switching DC currents of 80 A up to 300 A as well as battery voltages up to 48 V.
The contactors are equipped with DC coils featuring coil tolerances as required for traction batteries of industrial trucks and other battery-powered vehicles.

C130/180, C130/250

Combination contactors for battery voltages

Schaltbau's competitively-priced all-in-one device is a combination of line contactor, main fuse and manual cut-off switch in which additional devices as well as an optional horn can be integrated.
Main field of application are battery powered warehouse machines, such as fork lift and reach trucks as well as walk behind trucks and stackers.

FEATURES

- Compact, rugged design
- Type of 4 different sizes
- Double-break cadmium-free contacts
- Extra wide coil tolerance
- Standards: IEC 60947, EN 1175-1
- Optional auxiliary switch and mounting brackets

- Compact design
- Emergency disconnect switch with rugged, spring-loaded snap mechanism
- Battery contactor with main fuse
- Permanent magnetic blowout
- Double-break contacts, cadmium-free
- Optional horn and fuses

Catalogue **B71.*en***

Catalogue **B130.*en***

SPECIFICATIONS

	C110B/80 – C110B/120 – C110B/200 – C110B/300	C130/180 – C130/250
Type of voltage	DC bidirectional	DC
Main contacts		
Number of, Configuration	1x SPST-NO	1x SPST-NO
Nominal voltage U_n	48 V	80 V
Rated insulation voltage U_i	80 V	150 V
Rtd impulse withstand voltage U_{Ni}/U_{imp}	1.5 kV	2.5 kV
Pollution degree	PD3	PD3
Overvoltage category	OV3	OV3
Conv. thermal current I_{th}	60 A*1 – 100 A*1 – 150 A*1 – 240 A*1	120 A*1 – 250 A*1
Aux. contacts		
Number of, Configuration	1x SPDT, optional	1x SPDT, optional
Range of application		
Industry	✔ – Battery voltages	✔ – Battery voltages
Rolling stock	---	---
Coil voltage U_s	24 / 48 V DC	24 / 48 V DC

*1 Conv. thermal current I_{th} at $T_a = 40°C$

SCHALTBAU
Connect Contact Control

S100/80

Emergency disconnect switches for up to 48 V or battery voltages

Schaltbau S100 Series emergency disconnect switches guarantee instantaneous cut-out by manual operation. Load circuits are closed by pulling the red knob and, in an emergency, forcibly ruptured by pushing it down. The positive opening operation guarantees that the contacts open in the event of an emergency.

Special feature: The knob can be used as key. When engaged to the OFF position it can be removed so as to prevent unauthorized use of the truck.

S132, S134

Emergency disconnect switches for up to 100 V or battery voltages

Installation of emergency disconnect switches enhances safety at the work place significantly (meeting requirements for accident prevention). Single pole S134 switches are especially designed for DC applications.

Thanks to its snap mechanism the switch once actuated will complete the switch-off procedure in any case, because the snap mechanism works independently of the actuator. For ON and OFF there are two maintained positions.

S135

Emergency disconnect switches for up to 440 V or battery voltages

Emergency stop switches are required for many industrial machines and vehicles (meeting requirements for accident prevention). There are single and double pole versions of S135 Series switches.

Optional is a lockable version complete with cylinder lock. The disconnect switch may be locked when engaged to the OFF position so as to prevent unauthorized use - with key removable only in OFF position.

FEATURES

- Single pole emergency disconnect switch with snap mechanism
- Key function: Knob removable in OFF position
- Maintained position for ON and OFF
- High resistance to shock and vibration
- Optional auxiliary switch

- Single pole emergency disconnect switch with snap mechanism
- Magnetic blowout
- Two definite maintained positions (ON/OFF)
- Optional lockable version
- Optional auxiliary contact

- Single and double pole emergency disconnect switch with snap mechanism
- Magnetic blowout
- Two definite maintained positions (ON/OFF)
- Optional lockable version
- Easy to replace cam switch elements

Catalogue **B128**.*en*

Catalogue **B123**.*en* **B124**.*en*

Catalogue **B125**.*en*

SPECIFICATIONS

S100/80	S132, S134	S135	
DC	DC, AC	DC	**Type of voltage**
1x SPST-NC 24 / 36 / 48 V 150 V 2.5 kV	1x SPST-NC 100 V 160 V 2.5 kV	1x or 2x SPST-NC 300 V 600 V 6 kV	**Main contacts** Number of, Configuration Nominal voltage U_n Rated insulation voltage U_i Rtd impulse withstand voltage U_{Ni}/U_{imp}
PD3 OV3	PD3 OV3	PD3 OV3	Pollution degree Overvoltage category
60 A*1	125 A*1 or 250 A*1	160 A*1 or 250 A*1	Conv. thermal current I_{th}
---	1x SPDT, optional	1x SPDT, optional	**Aux. contacts** Number of, Configuration
✔ – Battery voltages ---	✔ – Battery voltages ---	✔ – Battery voltages ---	**Range of application** Industry Rolling stock
---	---	---	**Coil voltage U_s**

Schaltbau GmbH

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with compliments:

Electrical Components and Systems for Railway Engineering and Industrial Applications

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- Charging connectors for battery-powered machines and systems
- Connectors for railway engineering, including UIC connectors
- Special connectors to suit customer requirements

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

Contactors

- 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

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

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