



CH1130

Single pole high-voltage contactor
up to 3 kV

CH1130 - Single pole high-voltage contactor for DC and 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 CH1130/02 also uses permanent magnets and ceramic ele-

ments for quenching the electric arc, thus ensuring optimal functionality and reliability of the contactor.

The customer is now offered a new version for 3 kV DC and AC with thermal current of up to 250 A!

Features

- Suitable for AC and DC, semi-bidirectional (limited switching capability when current direction reversed)
- Compact, rugged design
- Double-break contacts
- Use of ceramic elements for extinguishing the arc
- CH1130 replacing the 4 existing CH contactor series
- Easy visual inspection of state of contacts (no tools)
- Tested to railway standard IEC 60077

Applications

The high-voltage 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 of rolling stock.

Ordering code

CH1130/02 110ET-00

Series	CH11	Single pole NO contactor	Auxiliary switches, type	
Nominal voltage	30	$U_n = 3,000\text{ V}$	S2x S826: Silver contacts, M3 screws	00
Conv. thermal current	02	$I_{th} = 250\text{ A}$	2x S926: Silver contacts, flat tabs 6.3 x 0.8 mm	01
Coil voltage	24 / 36 / 72 / 110 VDC		2x S926: Gold contacts, flat tabs 6.3 x 0.8 mm	02
			2x S826: Gold contacts, M3 screws	03
			Coil suppression	
			Suppressor diode	T
			Coil tolerance	
			-30 % ... +25 % x Coil voltage	E

Note: Presented in this catalogue are only stock items which can be supplied in short delivery time. For some variants minimum quantities apply. Please do not hesitate to ask for the conditions.

Special variants: If you need a special variant of the contactor, please do not hesitate to contact us. Maybe the type of contactor you are looking for is among our many special designs. If not, we can also supply customized designs. In this case, however, minimum order quantities apply.

Standards

IEC 60077-1:2002

Railway applications - Electric equipment for rolling stock - Part 1: General service conditions and general rules.

IEC 60077-2:2002

Railway applications - Electric equipment for rolling stock - Part 2: Electrotechnical components; General rules

EN 61373:2010

Railway applications - Rolling stock equipment - Shock and vibration tests

Specifications

Series	CH1130/02
Type of voltage	DC (semi bidirectional *1), AC (f < 60 Hz)
Contact configuration	1x SPST-NO
Nominal voltage U_n	3,000 V
Rated operating voltage U_e	3,600 V
Rated insulation voltage U_{Nm}	4,800 V
Rated impulse withstand voltage U_{Ni}	25 kV
Pollution degree / Overvoltage category	PD3 / OV3
Switching surges $U_e = 3,600$ V	<14.9 kV / <22 kV (at <10 A and T = 30 ms only)
Conventional thermal current I_{th} at wire gauge	250 A 120 mm ² min.
Component category (IEC 60077-2)	A2
Short-circuit making capacity	1.6 kA (new contacts) / 2 kA (used contacts)
Breaking capacity (T2 = 15 ms)	
DC, $U_e = 1,200$ V	300 A
DC, $U_e = 1,800$ V	200 A
DC, $U_e = 3,600$ V	50 A
Breaking capacity (T2 = 1 ms)	
DC, $U_e = 1,200$ V	550 A
DC, $U_e = 1,800$ V	400 A
DC, $U_e = 3,600$ V	90 A
Breaking capacity, reverse current direction (T2 < 1 ms)	
DC, $U_e = 900$ V	110 A
DC, $U_e = 1,800$ V	30 A
Breaking capacity ($\cos\phi = 1$)	
AC, $U_e = 900$ V (f = 162/3)	700 A
AC, $U_e = 1,800$ V (f = 162/3)	200 A
Breaking capacity ($\cos\phi = 0.8$)	
AC, $U_e = 900$ V (f = 162/3)	400 A
AC, $U_e = 1,800$ V (f = 162/3)	120 A
Breaking capacity ($\cos\phi = 1$)	
AC, $U_e = 900$ V (f = 50 Hz)	420 A
AC, $U_e = 1,800$ V (f = 50 Hz)	100 A
Rated short-time withstand current I_{cw} (T < 100 ms)	3 kA
Critical current range	None *2
Main contacts	
Contact material	AgSnO ₂
Terminal	M6 screw
Torque	8 Nm max.
Auxiliary contacts	
Configuration	2x S826 or 2x S926, see also > Catalogue D26.en
Contact material	Silver or Gold
Breaking capacity (T = 5 ms) *3	DC13 (110 V: 0.2 A; 24 V: 2 A)
Terminal	M3 screws or flat tabs 6.3 x 0.8 mm
Coil (coil suppression »T«, suppressor diode)	
Pollution degree / Overvoltage category	PD3 / OV2
Coil voltage U_s	24 / 36 / 72 / 110 V DC
Coil tolerance	0,7 ... 1,25 U_s
Power consumption at U_s and $T_a = 20$ °C	Cold coil: 37.5 W / Warm coil: 26.5 W
Pull-in voltage, typ. at $T_a = 20$ °C	0.6 x U_s
Pull-in time, typ. at $T_a = 20$ °C	< 60 ms
Drop-out voltage, typ. at $T_a = 20$ °C	0.1 ... 0.4 x U_s
Drop-out time, typ. at $T_a = 20$ °C	< 30 ms
Coil suppression	Suppressor diode
Coil terminal	Cage clamp
IP rating (IEC 60529 IP code)	IP00
Mechanical endurance	> 2 million operating cycles
Vibration / Shock (IEC 61373)	Category 1, Class B
Mounting orientation	horizontal / vertical, terminal studs pointing upwards
Ambient conditions	
Working temperature / Storage temperature	-50 °C ... +70 °C *4 / -50 °C ... +85 °C
Altitude	< 2,000 m above sea level
Humidity (IEC 50125-1)	< 75 % on an annual average
Weight	< 6 kg

*1 Limited breaking capacity when current direction reversed

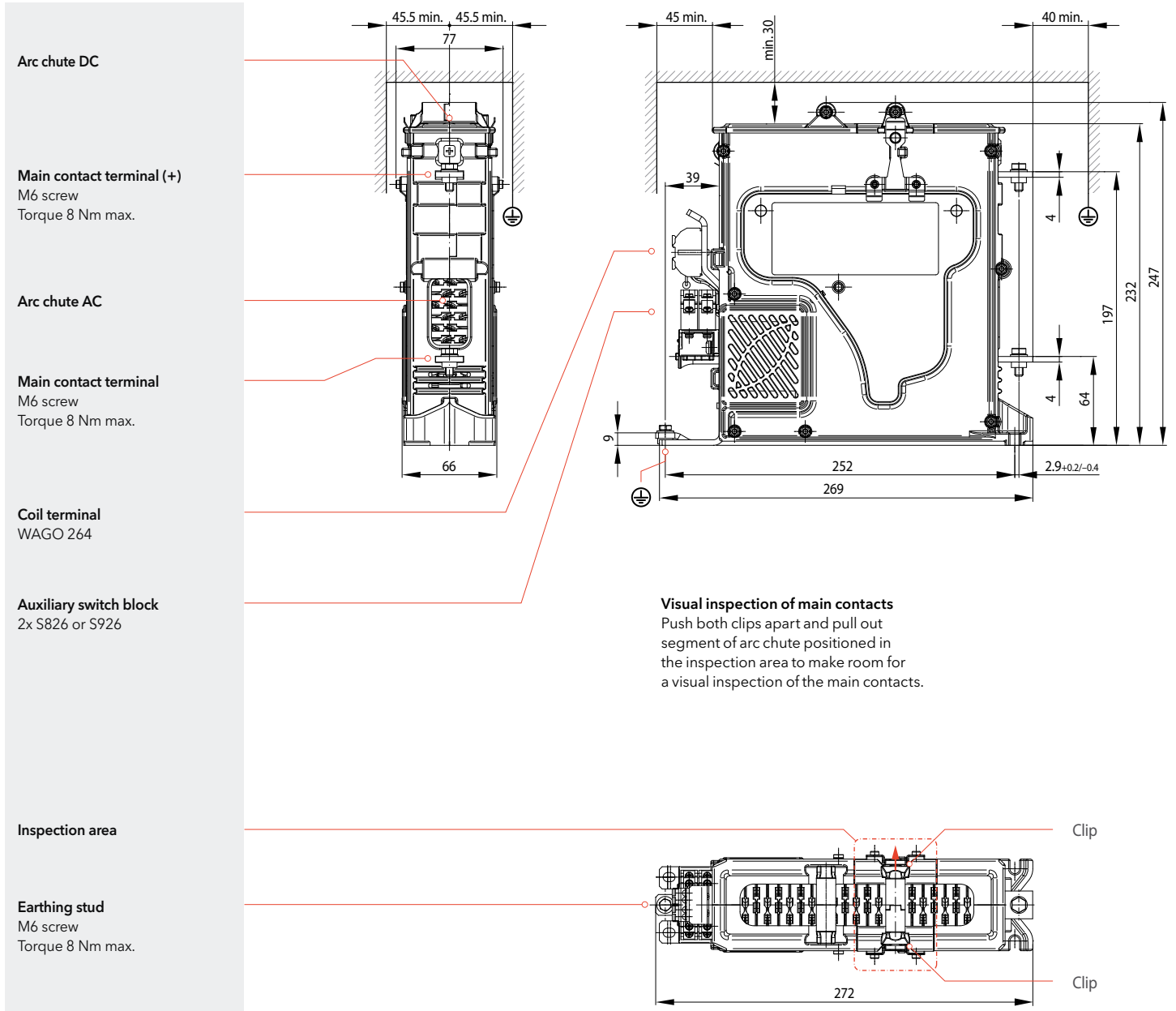
*2 At high inductive loads < 10 A (T > 20 ms)

*3 Valid for silver contacts, data for gold contacts on request

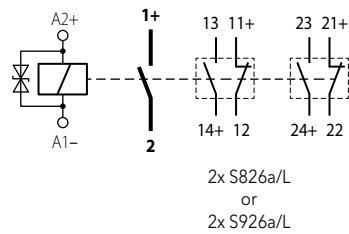
*4 Working temperature -50 °C with S926 series aux. contacts only, otherwise -40 °C

CH1130 - Dimension and circuit diagram

Dimensions

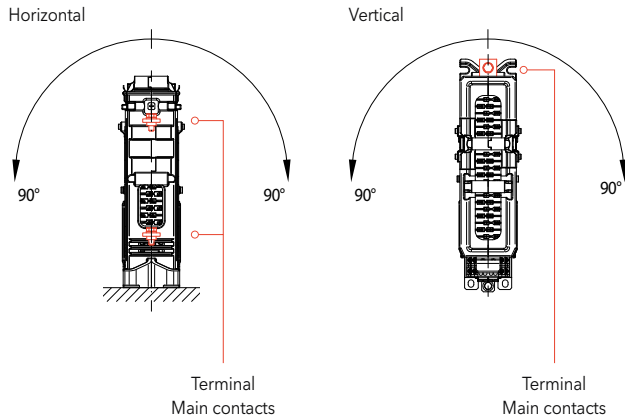


Circuit diagram

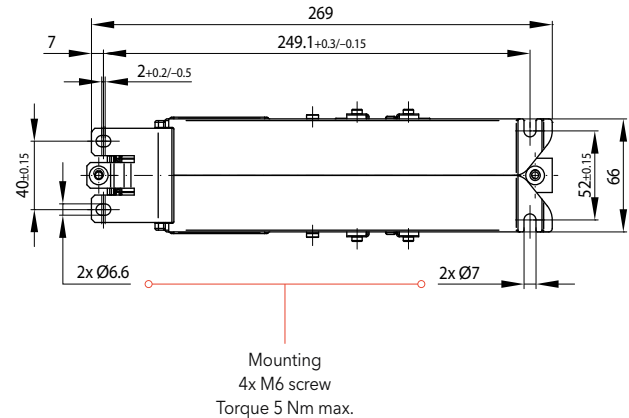


Mounting

Orientations



Mounting holes



Maintenance and safety instructions

Maintenance:

- CH1130/02 Series contactors are maintenance free with normal use.
- Make regular inspections once or twice a year. So when installing the contactor, make sure that there is enough space to take out and re-assemble the segment of the arc chute with ease, so that the main contacts become accessible for inspection.
- Visual inspection of main contacts:
For visual inspection of the main contacts there is an opening in the arc chute. Push both clips apart and pull out the segment of the arc chute that is positioned in the inspection opening to make room for a visual inspection of the main contacts. Re-assembly is done in reverse order. Make sure not to replace the segment turned by 180° and by applying force.
- Frequent switching or switching under high load may lead to increased wear of the main contacts. In this case replacement of the main contacts may become necessary.

Safety instructions:

- The device must be used according to the intended purpose as specified in the technical documentation. You are obliged to observe all specifications depending on operating temperature, degree of pollution etc. that are relevant to your application.
- Without further safety measures the CS Series contactors are not suited for use in potentially explosive atmospheres.
- In case of malfunction of the device or uncertainties stop using it any longer and contact the manufacturer instantly.
- Tampering with the device can seriously affect the safety of people and equipment. This is not permitted and leads to an exclusion of liability and warranty.
- Coil suppression for reducing surges when the coil is switched off is optimally attuned to the contactor's switching behaviour. The existing opening characteristic must not be negatively influenced by parallel connection with an external diode.
- Contactors running permanently may heat up. So make sure that the contactor has sufficiently cooled down before you start any inspection or maintenance work.
- When installing contactors with magnetic blowout make sure to do it in such a way that no magnetizable parts can be attracted by the permanent magnets that are also capable of destroying all data of swipe cards.
- Strong electromagnetic induction caused when switching off can influence other components installed near the contactor.
- Improper handling of the contactor, e.g. when hitting the floor with some impact, can result in breakage, visible cracks and deformation.



For detailed maintenance, safety and mounting instructions please refer to our operating manuals > C170-M.en!



Defective contactors or parts (e.g. arc chambers, auxiliary switches) must be replaced immediately!



For a detailed list of all safety instructions see here:
> schaltbau.info/safety3en!

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 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.