

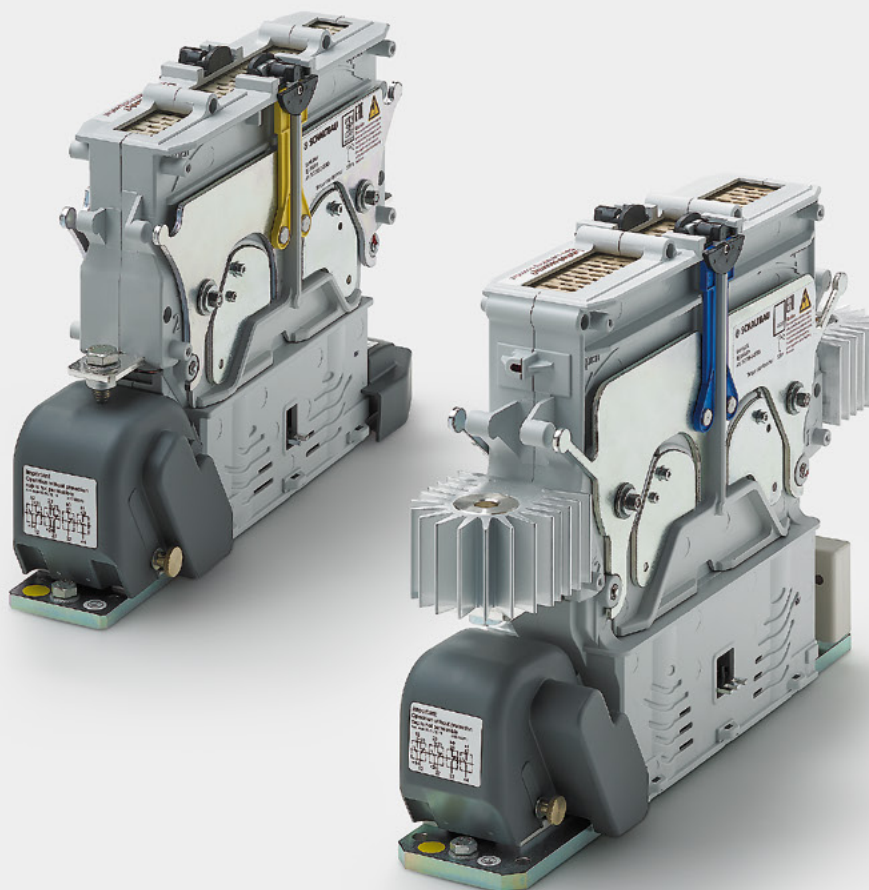
# 3

## Contactors

CT1115/04, CT1130/04  
CT1115/08, CT1130/08  
CT1115/11, CT1130/11

1 pole  
AC and bi-directional DC  
NO contactors for  
400 A, 800 A and 1,100 A

Catalogue C20.en

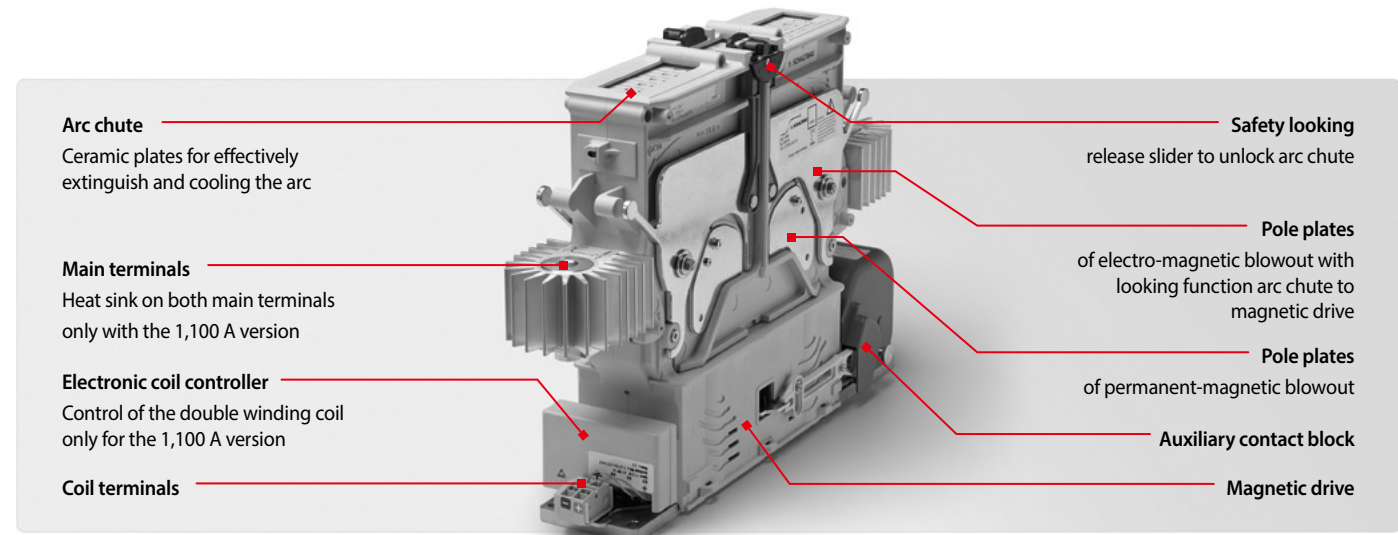


CT1115/04, CT1130/04	Single pole power contactors for AC and DC, 400 A, 1,500 V or 3,000 V
CT1115/08, CT1130/08	Single pole power contactors for AC and DC, 800 A, 1,500 V or 3,000 V
CT1115/11, CT1130/11	Single pole power contactors for AC and DC, 1,100 A, 1,500 V or 3,000 V

CT series – revolutionary method of arc quenching for both DC and AC

With the CT contactor series Schaltbau is introducing an innovative contactor concept to the market. The outstanding technical feature is the innovative combination of electromagnetic and permanent-magnetic blowout technology for electric arc control. The successful combination of these two principles greatly improves both switching functionality, reliability and forms a practical and economically impressive device concept.

The CT contactor concept is flexible and can be adapted to suit the needs of the customer. Due to its technical characteristics, its economical advantages, its compactness and versatility, the CT power contactor series is simply predestined for use in industrial and railway applications alike. The product family, which is currently being expanded, comprises a number of various design versions catering to a wide range of uses.



### Features

- Innovative design:**
  - 1 pole NO contactors, DC bidirectional or AC
  - Contactors for 400 A, 800 A or 1,100 A current rating
  - Nominal voltage 1,500 V or 3,000 V
  - Double-break contacts
  - Reliable shutdown of smaller currents at higher voltages – no critical current range
  - Compact, rugged design
- Universal use:**
  - Drive system with coil tolerance according to railway standards
  - CCC approval for CT11xx/04, CT11xx/08 and CT11xx/11
  - UL approval available for selected versions a list of all UL types can be found here: [schaltbau.info/ct-group-en](#)
- Excellent insulation properties:**
  - Reinforced insulation between main circuit and control circuit/auxiliary circuit
- Easy maintenance:**
  - Easy inspection and replacement of main contact tips
  - Easy to replace arc chute

### Applications

- Main contactor for:**
  - Traction converters
  - Inverters for auxiliary equipment
- Contactor for:**
  - Field circuits of motors
  - Conventional resistor based traction units (retrofit)
  - Starter and compressor motors
  - Heating circuits
- Contactor for a host of industrial and railway applications:**
  - Locomotives
  - Cranes
  - Mining

### Competence

**The success of a product is owed to its quality**

The Schaltbau product line is clearly defined and keeps up with the technological requirements of today's markets. Behind every individual contactor you will find decades of experience in engineering and manufacturing.

Contactors are remote-controlled electrical switches with which high currents and voltages can be switched. A control current activates the magnetic drive that closes and reopens the contacts of the load current circuit.

The moment of switching off represents a special challenge. The air between the opening contacts becomes ionised and an electric arc

is created in which the current continues to flow. The air between the contacts offers a great deal of electrical resistance, which creates temperatures of up to 10,000 °C. To prevent the contacts or even the entire device from being thermal destroyed, the electric arc must be driven out of the contact area into arc chambers to be stretched and cooled until it loses energy and finally dies out. In order to extinguish the electric arc within a few milliseconds we have incorporated some sophisticated solutions in our contactors.

This experience helps us to develop reliable contactors for power plants, computer centres and electrically powered vehicles.

### Ordering code

Example: **CT1130/04 H 110ET-00**

<b>Series, contact configuration</b>	<b>Auxiliary switches, number and type</b>
CT11 1 pole NO contactor CT12 2 pole NO contactor *1	M3 screw-type terminals { 1x S870*2 (a1) 1x S870*2 (b0) 2x S826 a L*3 } <b>00</b>
<b>Nominal voltage</b>	M3 screw-type terminals { 1x S870*2 (a1) 1x S870*2 (b0) 2x S826*3 } <b>01</b>
15 U <sub>n</sub> = 1,500 V 30 U <sub>n</sub> = 3,000 V	Flat tabs 6.3 x 0.8 mm { 4x S826*3 } <b>02</b>
<b>Conv. thermal current</b>	Flat tabs 6.3 x 0.8 mm { 4x S826*3 } <b>03</b>
04 I <sub>th</sub> = 400 A 08 I <sub>th</sub> = 800 A 11 I <sub>th</sub> = 1,100 A	
<b>Mounting position</b>	
H horizontal (lock bar yellow), for coil supression T only V vertical (lock bar red), for coil supression T only N horizontal or vertical (lock bar blue), for coil supression CM only	
<b>Coil voltage</b>	
24 / 36 / 48 / 72 / 110 V DC	
<b>Coil tolerance</b>	
E -30 % ... +25 %	
<b>Coil suppression</b>	
T Suppressor diode, (CT11xx/04, CT11xx/08 only) CM Double coil controller with integrated suppressor diode for magnetic drives with double winding coil, (CT11xx/11 only)	


\*1 See catalogue C21 \*2 See also catalogue D70 \*3 See also catalogue D26

**Do you need support for a special application? Please contact us! We would be glad to assist you in the selection of the contactor that suits your application best.**

*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 variant:** 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.

<b>Standards</b>	
IEC 60077-2	Railway applications – Electric equipment for rolling stock – Part 2: Electrotechnical components; General rules
IEC 62497-1	Railway applications – Insulation coordination – Part 1: Basic requirements – Clearances and creepage distances for all electrical and electronic equipment
IEC 61373	Railway applications – Rolling stock equipment – Shock and vibration tests
IEC 60947-4-1	Low-voltage switchgear and controlgear – Part 4-1: Contactors and motor-starters – Electromechanical contactors and motor-starters
IEC 62236-3-2	Railway applications – Electromagnetic compatibility – Part 3-2: Rolling stock – Apparatus

Specifications Single pole power contactors for AC and DC, Nominal voltage = 1,500 V					CT series
Series		CT1115/04	CT1115/08	CT1115/11	
Type of voltage Number of poles, configuration		DC (bidirectional), AC (f ≤ 60 Hz) 1x SPST-NO			
Electrical ratings of main circuit to IEC 60077-2					
Nominal voltage	U <sub>n</sub>	1,500 V	1,500 V	1,500 V	
Rated operating voltage	U <sub>r</sub>	1,800 V	1,800 V	1,800 V	
Rated insulation voltage	U <sub>Nm</sub>	3,000 V	3,000 V	3,000 V	
Rated impulse withstand voltage	U <sub>Ni</sub>	15 kV	15 kV	15 kV	
Pollution degree / Overvoltage category		PD3 / OV2	PD3 / OV2	PD3 / OV2	
Switching overvoltages	@ U <sub>e</sub> = 1,800 V	<9 kV (<11 kV @ T2 = 40 ms)	<9 kV (<11 kV @ T2 = 40 ms)	<9 kV (<11 kV @ T2 = 40 ms)	
Conventional thermal current	I <sub>th</sub>	400 A *1	800 A	800 A	
Component category		A2	A2	A2	
Short-circuit making capacity, new/used contacts		3.5 kA / 5 kA	4 kA / 8 kA	4 kA / 8 kA	
Rated operating current I <sub>e</sub> (@ operational frequency C2) DC, U <sub>e</sub> = 1,800 V (T2 = 15 ms) DC, U <sub>e</sub> = 3,600 V (T2 = 15 ms)		300 A ---	450 A ---	450 A ---	
Rated operating current I <sub>e</sub> (@ operational frequency C2) AC, U <sub>e</sub> = 1,800 V (f = 16.7 / 50 Hz; cosφ = 0.8) AC, U <sub>e</sub> = 3,600 V (f = 16.7 / 50 Hz; cosφ = 0.8)		400 A / 300 A --- / ---	--- / 550 A ---	--- / 550 A ---	
Rated short-circuit breaking capacity (T2 = 15 ms)	DC, U <sub>e</sub> = 1,200 V DC, U <sub>e</sub> = 1,800 V DC, U <sub>e</sub> = 3,600 V	700 A 400 A ---	1,200 A 800 A ---	1,200 A 800 A ---	
Rated short-circuit breaking capacity (T2 = 1 ms)	DC, U <sub>e</sub> = 1,200 V DC, U <sub>e</sub> = 1,800 V DC, U <sub>e</sub> = 3,600 V	1,300 A 900 A ---	2,500 A 1,800 A ---	2,500 A 1,800 A ---	
Rated short-circuit breaking capacity (cosφ = 0.8) AC, U <sub>e</sub> = 1,200 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 1,800 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 3,600 V (f = 16.7 / 50 Hz)		1,000 A / 700 A 800 A / 500 A --- / ---	1,900 A / 1,400 A 1,500 A / 1,000 A --- / ---	1,900 A / 1,400 A 1,500 A / 1,000 A --- / ---	
Rated short-circuit breaking capacity (cosφ = 1) AC, U <sub>e</sub> = 1,200 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 1,800 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 3,600 V (f = 16.7 / 50 Hz)		1,300 A / 1,000 A 1,000 A / 700 A --- / ---	2,200 A / 1,600 A 1,900 A / 1,200 A --- / ---	2,200 A / 1,600 A 1,900 A / 1,200 A --- / ---	
Rated short-time withstand current I <sub>cw</sub>	T < 100 ms	6 kA	8 kA	8 kA	
Critical current range		None	None	None	
Design Contact material Terminals / Torque		AgSnO <sub>2</sub> M10 / 16 ... 20 Nm	AgSnO <sub>2</sub> M12 / 24 ... 30 Nm	AgSnO <sub>2</sub> M12 / 24 ... 30 Nm	
Auxiliary contacts					
Number and type Contact material Switching capacity Terminals	S826, T = 5 ms	1x S870 (a <sub>1</sub> )*2, 1x S870 (b <sub>0</sub> )*2, 2x S826 or 4x S826 Silver 16 A @ 24 V DC; 13.5 A @ 80 V DC; 7 A @ 110 V DC Screws M3 / Flat tabs 6.3 x 0.8 mm			
Magnetic drive (monostable)					
Coil voltage Pollution degree / overvoltage category Coil tolerance	U <sub>s</sub>	24 / 36 / 48 / 72 / 110 V DC PD3 / OV2 -30 % ... +25 % U <sub>s</sub>	24 / 36 / 48 / 72 / 110 V DC PD3 / OV2 -30 % ... +25 % U <sub>s</sub>	24 / 36 / 48 / 72 / 110 V DC PD3 / OV2 -30 % ... +25 % U <sub>s</sub>	
Coil power dissipation	@ U <sub>s</sub> and T <sub>a</sub> = 20 °C	Cold coil 55 W Warm coil 40 W	Cold coil 72 W Warm coil 54 W	Pull-in (1 s max.) 330 W Hold 50 W	
Pull-in voltage, typical Pull-in time, typical Drop-off voltage, typical Drop-off time, typical	@ T <sub>a</sub> = 20 °C @ T <sub>a</sub> = 20 °C @ T <sub>a</sub> = 20 °C @ T <sub>a</sub> = 20 °C	0.6 x U <sub>s</sub> 120 ms > 0.08 x U <sub>s</sub> 60 ms	0.6 x U <sub>s</sub> 250 ms > 0.08 x U <sub>s</sub> 60 ms	0.6 x U <sub>s</sub> 250 ms > 0.08 x U <sub>s</sub> 60 ms	
Coil design / Coil suppression Suppressor diode Double coil controller with integreated suppressor diode		Standard coil ● ---	Standard coil ● ---	Double winding coil --- ●	
Coil terminal		Cage clamp	Cage clamp	Cage clamp	
Degree of protection		IP00			
Mechanical endurance		> 2 million operating cycles	> 2 million operating cycles	> 300.000 operating cycles	
Vibration / shock	IEC 61373	Category 1, class B			
Mounting position		horizontal / vertical			
Temperatures	Operating temperature / Storage temperature Altitude / Humidity (EN 62498-1)	-40 °C ... +70 °C / -40 °C ... +85 °C < 2,000 m above sea level / < 75 % yearly average			
Weight		11 kg	18 kg	20 kg	
					 SCHALTBAU

\*1 With frequent switching under load the conv. thermal current I<sub>th</sub> must be limited to 350 A.

\*2 a<sub>1</sub> and b<sub>0</sub> according to IEC60077-2 (Aux. contact b<sub>0</sub> „well open“ or mirror contact for feedback circuits of safety-relevant controls according to DIN EN 13849-1)

Specifications Single pole power contactors for AC and DC, Nominal voltage = 3,000 V					CT series
Series		CT1130/04	CT1130/08	CT1130/11	
Type of voltage Number of poles, configuration		DC (bidirectional), AC (f ≤ 60 Hz) 1x SPST-NO			
Electrical ratings of main circuit to IEC 60077-2					
Nominal voltage	U <sub>n</sub>	3,000 V	3,000 V	3,000 V	
Rated operating voltage	U <sub>r</sub>	3,600 V	3,600 V	3,600 V	
Rated insulation voltage	U <sub>Nm</sub>	4,800 V	4,800 V	4,800 V	
Rated impulse withstand voltage	U <sub>Ni</sub>	25 kV	25 kV	25 kV	
Pollution degree / Overvoltage category		PD3 / OV2	PD3 / OV2	PD3 / OV2	
Switching overvoltages	@ U <sub>e</sub> = 1,800 V	< 14.4 kV	< 15 kV	< 15 kV	
Conventional thermal current	I <sub>th</sub>	400 A *1	800 A	1,100 A	
Component category		A2	A2	A2	
Short-circuit making capacity, new/used contacts		3.5 kA / 5 kA	4 kA / 8 kA	4 kA / 8 kA	
Rated operating current I <sub>e</sub> (@ operational frequency C2) DC, U <sub>e</sub> = 1,800 V (T2 = 15 ms) DC, U <sub>e</sub> = 3,600 V (T2 = 15 ms)		--- 200 A	--- 320 A	--- 320 A	
Rated operating current I <sub>e</sub> (@ operational frequency C2) AC, U <sub>e</sub> = 1,800 V (f = 16.7 / 50 Hz; cosφ = 0.8) AC, U <sub>e</sub> = 3,600 V (f = 16.7 / 50 Hz; cosφ = 0.8)		--- 350 A / 280 A	--- --- / 650 A	--- --- / 650 A	
Rated short-circuit breaking capacity (T2 = 15 ms)	DC, U <sub>e</sub> = 1,200 V DC, U <sub>e</sub> = 1,800 V DC, U <sub>e</sub> = 3,600 V	900 A 700 A 400 A	--- 1,300 A 750 A	--- 1,300 A 750 A	
Rated short-circuit breaking capacity (T2 = 1 ms)	DC, U <sub>e</sub> = 1,200 V DC, U <sub>e</sub> = 1,800 V DC, U <sub>e</sub> = 3,600 V	2,000 A 1,600 A 800 A	--- 2,500 A 1,300 A	--- 2,500 A 1,300 A	
Rated short-circuit breaking capacity (cosφ = 0.8) AC, U <sub>e</sub> = 1,200 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 1,800 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 3,600 V (f = 16.7 / 50 Hz)		2,000 A / 1,200 A 1,600 A / 900 A 900 A / 500 A	--- / --- 2,300 A / 1,500 A 1,300 A / 900 A	--- / --- 2,300 A / 1,500 A 1,300 A / 900 A	
Rated short-circuit breaking capacity (cosφ = 1) AC, U <sub>e</sub> = 1,200 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 1,800 V (f = 16.7 / 50 Hz) AC, U <sub>e</sub> = 3,600 V (f = 16.7 / 50 Hz)		2,500 A / 1,500 A 2,100 A / 1,200 A 1,300 A / 800 A	--- / --- 2,900 A / 1,700 A 1,600 A / 1,300 A	--- / --- 2,900 A / 1,700 A 1,600 A / 1,300 A	
Rated short-time withstand current I <sub>cw</sub>	T < 100 ms	6 kA	8 kA	8 kA	
Critical current range		None	None	None	
Design Contact material Terminals / Torque		AgSnO <sub>2</sub> M10 / 16 ... 20 Nm	AgSnO <sub>2</sub> M12 / 24 ... 30 Nm	AgSnO <sub>2</sub> M12 / 24 ... 30 Nm	
Auxiliary contacts					
Number and type Contact material Switching capacity Terminals	S826, T = 5 ms	1x S870 (a <sub>1</sub> )*2, 1x S870 (b <sub>0</sub> )*2, 2x S826 or 4x S826 Silver 16 A @ 24 V DC; 13.5 A @ 80 V DC; 7 A @ 110 V DC Screws M3 / Flat tabs 6.3 x 0.8 mm			
Magnetic drive (monostable)					
Coil voltage Pollution degree / overvoltage category Coil tolerance	U <sub>s</sub>	24 / 36 / 48 / 72 / 110 V DC PD3 / OV2 -30 % ... +25 % U <sub>s</sub>	24 / 36 / 48 / 72 / 110 V DC PD3 / OV2 -30 % ... +25 % U <sub>s</sub>	24 / 36 / 48 / 72 / 110 V DC PD3 / OV2 -30 % ... +25 % U <sub>s</sub>	
Coil power dissipation	@ U <sub>s</sub> and T <sub>a</sub> = 20 °C	Cold coil 55 W Warm coil 40 W	Cold coil 72 W Warm coil 54 W	Pull-in (1 s max.) 330 W Hold 50 W	
Pull-in voltage, typical Pull-in time, typical Drop-off voltage, typical Drop-off time, typical	@ T <sub>a</sub> = 20 °C @ T <sub>a</sub> = 20 °C @ T <sub>a</sub> = 20 °C @ T <sub>a</sub> = 20 °C	0.6 x U <sub>s</sub> 120 ms > 0.08 x U <sub>s</sub> 60 ms	0.6 x U <sub>s</sub> 250 ms > 0.08 x U <sub>s</sub> 60 ms	0.6 x U <sub>s</sub> 250 ms > 0.08 x U <sub>s</sub> 60 ms	
Coil design / Coil suppression Suppressor diode Double coil controller with integreated suppressor diode		Standard coil ● ---	Standard coil ● ---	Double winding coil --- ●	
Coil terminal		Cage clamp	Cage clamp	Cage clamp	
Degree of protection		IP00			
Mechanical endurance		> 2 million operating cycles			
Vibration / shock	IEC 61373	Category 1, class B			
Mounting position		horizontal / vertical			
Temperatures	Operating temperature / Storage temperature Altitude / Humidity (EN 50125-1)	-40 °C ... +70 °C / -40 °C ... +85 °C < 2,000 m above sea level / < 75 % yearly average			
Weight		13 kg	21 kg	23 kg	
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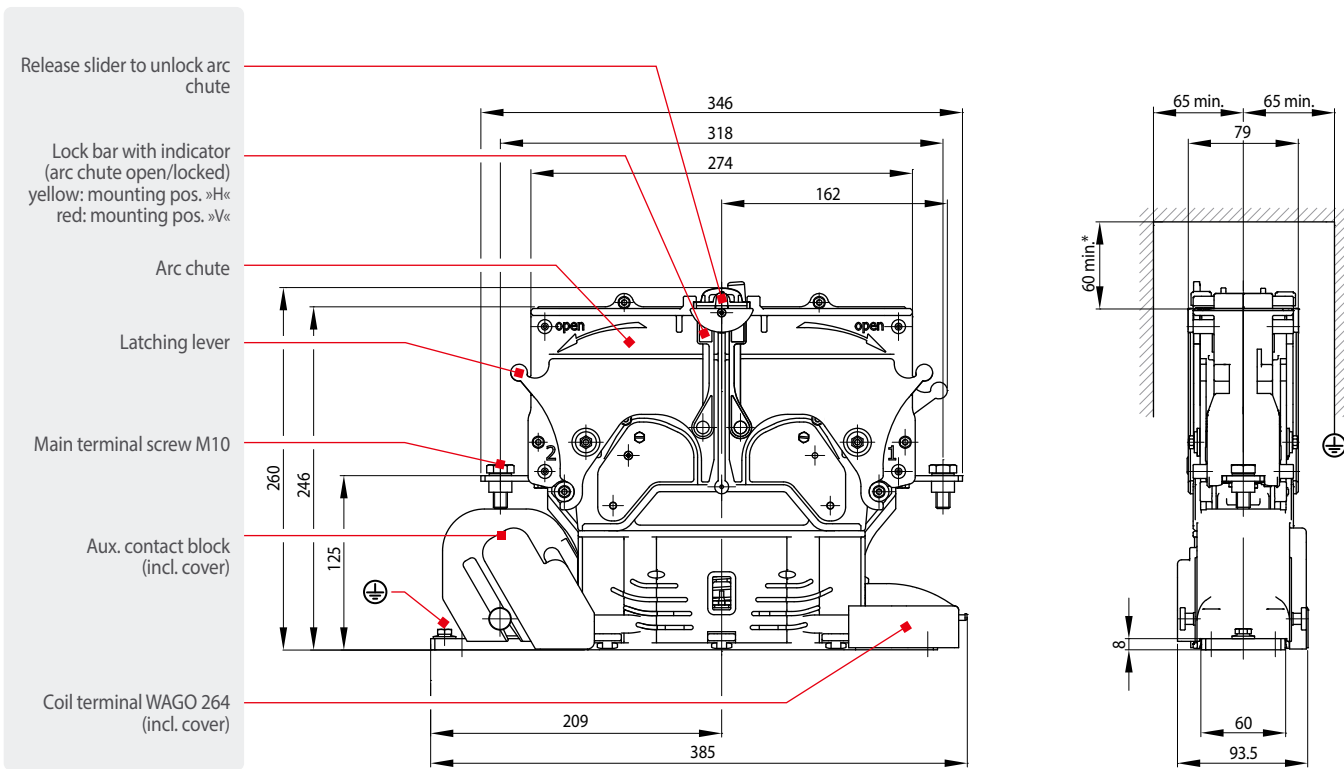
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\*2 a<sub>1</sub> and b<sub>0</sub> according to IEC60077-2 (Aux. contact b<sub>0</sub> „well open“ or mirror contact for feedback circuits of safety-relevant controls according to DIN EN 13849-1)



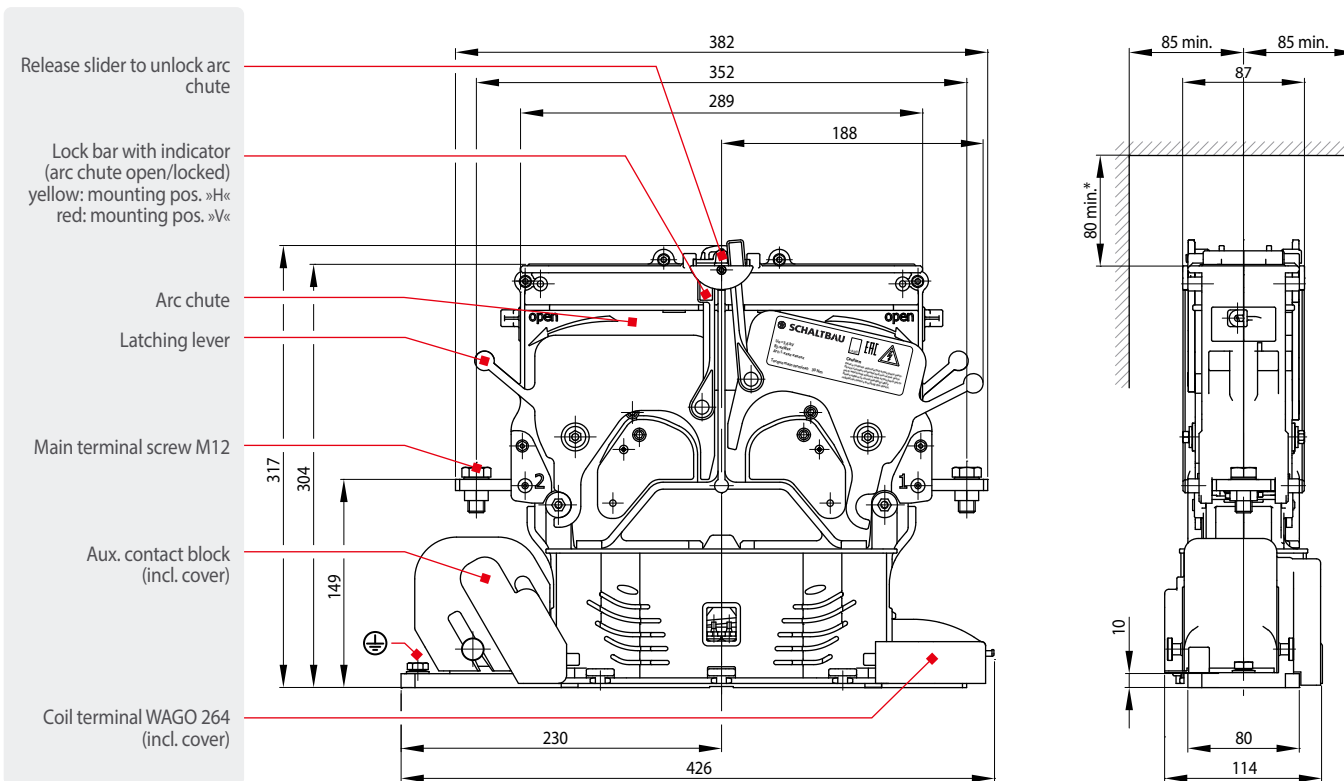
CT1115/04 Dimension diagram single pole NO contactor for 1,500 V / 400 A

CT series



CT1115/08 Dimension diagram single pole NO contactor for 1,500 V / 800 A

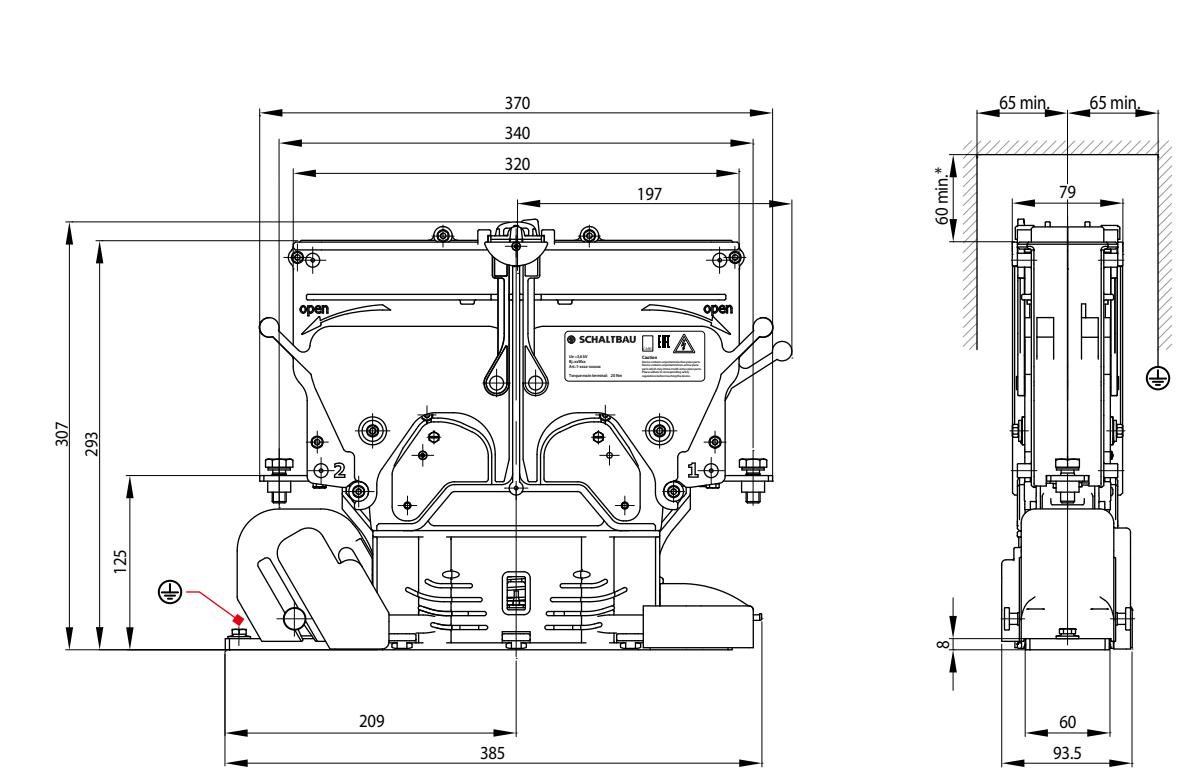
CT series



\* Interrupting at maximum capacity could require larger clearance!  
Feel free to contact us, we will be happy to assist you with dimensioning.

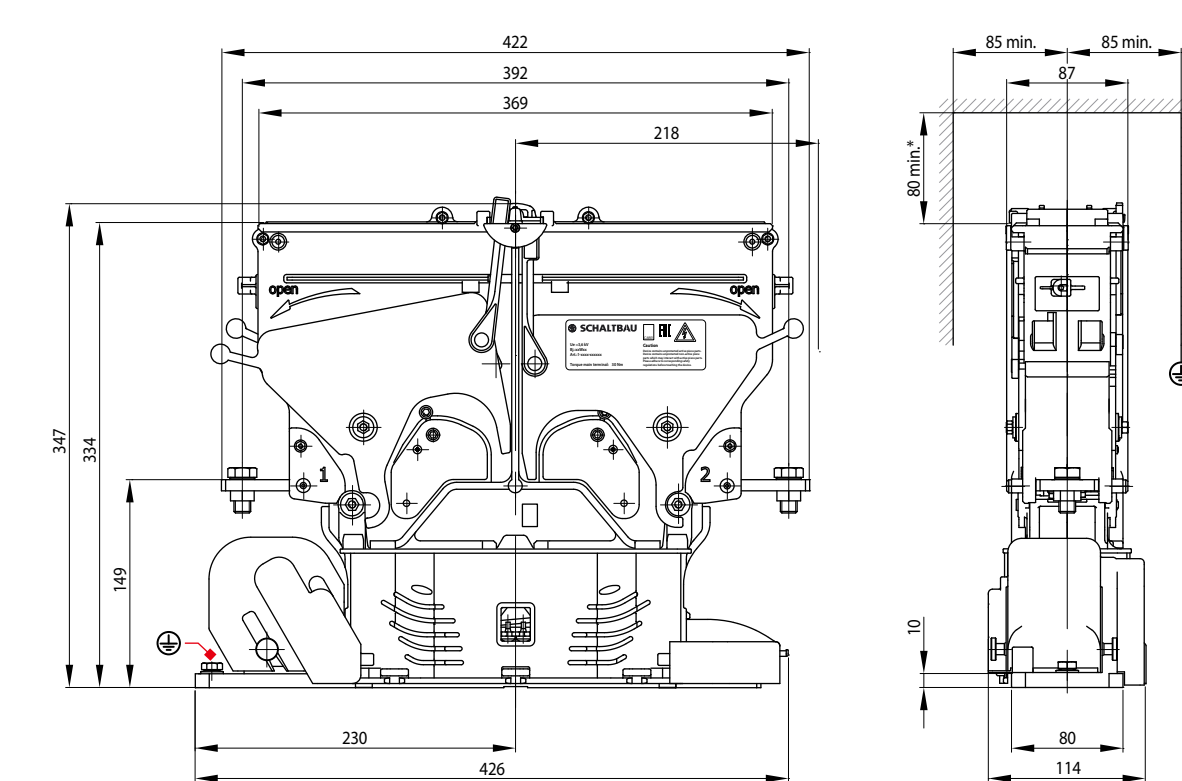
CT1130/04 Dimension diagram single pole NO contactor for 3,000 V / 400 A

CT series



CT1130/08 Dimension diagram single pole NO contactor for 3,000 V / 800 A

CT series

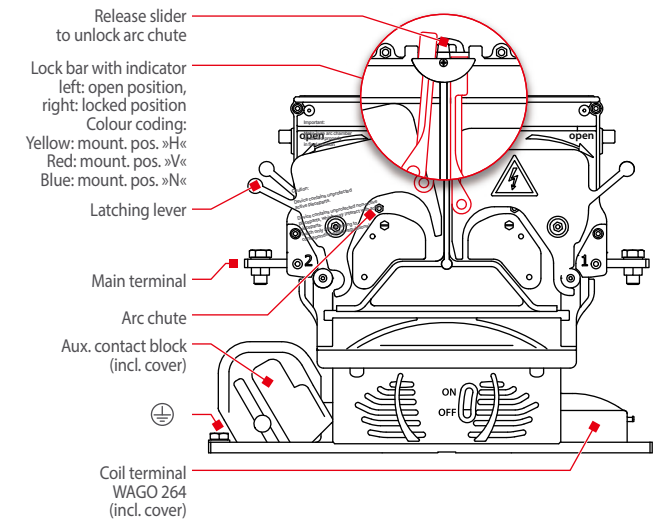


\* Interrupting at maximum capacity could require larger clearance!  
Feel free to contact us, we will be happy to assist you with dimensioning.



Mounting instructions

CT series



Dimensioning instructions

- Do you need some help? For selecting the contactor that suits your application best do not hesitate to ask our advice.
- For connection of the main contacts Schaltbau recommends the use of busbars with the following dimensioning:
  - Conv. thermal current  $I_{th} = 400\text{ A}$ : 60 x 5 mm
  - Conv. thermal current  $I_{th} = 800\text{ A}$ : 80 x 8 mm
- Observe clearance of live parts to arc chute! Refer to dimension drawings on page 4 and 5 for data.
- For high switching loads at  $U_n \geq 3,000\text{ V DC}$  a special design CT1130/08 ... 200 with adjusted blow-out coils is available.

Start up

Before initial start up make sure that:

- the arc chute is mounted properly and the lock bars are locked in position
- the protective covers are mounted properly
- the contactor is earthed (PE terminal on mounting plate)

Coil suppression

Coil suppression »T«, suppressor diode: Coil suppression for reducing surges when the coil is switched off is optimally attuned to the contactor's switching behaviour. Caution: Parallel connection with a simple diode will override the existing coil suppression.

Taking off the arc chute:

- Push both release sliders in the direction indicated by the arrow and hold them in this position.
- Move all four levers for unlocking the arc chute in the direction indicated by the arrow.
- The arc chute incorporating the stationary main contacts can now be lifted from the contactor.

Mounting the arc chute:

- Mount the arc chute onto the magnetic drive. Note: The arc chute has keys on one side to fit into slots on the corresponding side of the contactor. So you cannot mount it the wrong way round.
- Move all four levers for unlocking the arc chute into the original position.
- Check: The arc chute is locked properly, if all four lock bars click into place and cannot be opened without pushing the release slider.

Disassembly of protective covers:

- Protective cover auxiliary switches: Dismount arc chute first, then loosen knurled head screws and remove protective cover.
- Protective cover coil terminals: Unscrew cover and take it off.

Assembly of protective covers:

- Protective cover auxiliary switches: Position protective cover and screw in both knurled head screws. Then mount arc chute.
- Protective cover coil terminals: Introduce protective cover into the groove of the coil drive and locate in position. Then tighten screws.

Spare parts

CT series

Items	Spare part, description	Ordering code					
		CT1115/04	CT1130/04	CT1115/08	CT1130/08	CT1115/11	CT1130/11
1	Stationary contact, complete – order 2 per pole	MC CT1015/04	MC CT1030/04	MC CT1015/08	MC CT1030/08	MC CT1015/11	MC CT1030/11
1	Contact bridge with mounted contact holder, mounting position »H«	CBH CT1015/04	CBH CT1030/04	CBH CT1015/08	CBH CT1030/08	CBH CT1000/08	
1	Contact bridge with mounted contact holder, mounting position »V«	CBV CT1015/04	CBV CT1030/04	CBV CT1015/08	CBV CT1030/08		
1	Ceramic protection inserts – order 2 per pole	PI CT1030/04		PI CT1000/08			
1	Protective cover coil terminals	CC CT1030/04		CC CT1030/08			
1	Protective cover aux. switches	CA CT1030/04		CA CT1030/08			
1	Snap-action switch (SPDT)	S826 a L					
1	Contact block of 2x S870 (momentary switches a1, b0)	AS S870					

When ordering spare parts, please always give the exact series as well as the article number of the contactor, see type plate.

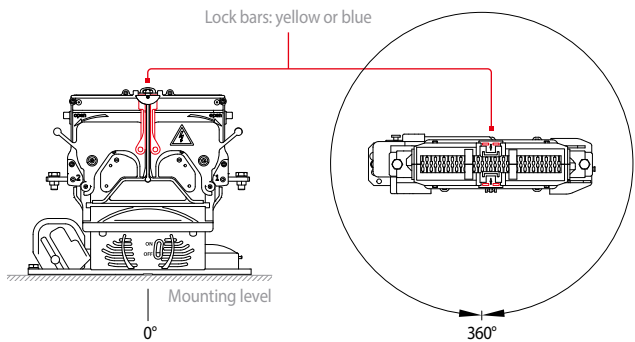
Mounting positions

CT series

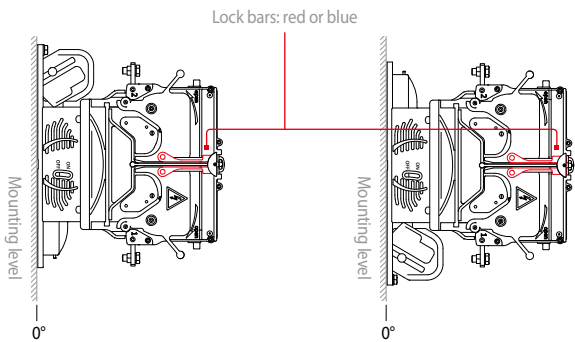
The colour of the lock bars is an indication of the correct mounting position:

- H** Horizontal: Yellow lock bars ► Mounting position »H«
- V** Vertical: Red lock bars ► Mounting position »V«
- N** Horizontal/vertical: Blue lock bars ► Mounting position »H« or »V«

Horizontal mounting:



Vertical mounting:



**Mounting position:**  
Please observe the mounting position as shown on the nameplate.  
The permissible installation position can be recognized by the color of the lock bar.

Maintenance instructions

**For detailed maintenance, safety and mounting instructions please refer to our operating manual**  
➔ **C20-C21-M.en!**

- CT 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 remove and replace the arc chute with ease and that the main contacts become accessible for inspection.
- 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. For detailed information please refer to our manual.

Safety instructions

CT series

- The switching device meets the requirements of basic insulation. Make sure the plate onto which the drive of the contactor is mounted is earthed in a vibration resistant way.
- Do not use contactor without properly mounted arc chute.
- The contactor has unprotected live parts and carries a label that warns of the hazard. This caution must be observed and the label must not be removed in any way.
- The required clearance of live parts to ground and other parts of the contactor is to be observed as well as the safety regulations of the applicable standards.
- Switching at maximum breaking capacity might require larger clearance! Do not hesitate to ask our advice for dimensioning.
- Do not use contactor without protective covers (for coil terminals and auxiliary switches).
- 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.
- Improper handling of the contactor, e.g. when hitting the floor with some impact, can result in breakage, visible cracks and deformation.

**Defective parts must be replaced immediately!**

# Schaltbau GmbH

For detailed information on our products and services visit our website – or give us a call!

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with compliments:



The products manufactured by Schaltbau GmbH have been certified since 2008 according to the IRIS standard of quality.



Since 2002, Schaltbau GmbH has been certified according to the DIN EN ISO 14001 standard. For more information, please visit our website.



Since 1994, Schaltbau GmbH has been certified according to the DIN EN ISO 9001 standard. For more information, please visit our website.

## Electrical Components and Systems for Railway Engineering and Industrial Applications

### Connectors

- 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

- Snap-action switches with positive opening operation
- Snap-action switches with self-cleaning contacts
- Snap-action switch made of robust polyetherimide (PEI)
- Snap-action switch with two galvanically isolated contact bridges
- Special switches to suit customer requirements

### Contactors Emergency disconnect switches

- 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

### Electrics for rolling stock

- 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