

C360

1 pole AC and bi-directional DC
NO contactors for 150 A, 300 A and 500 A
for railway applications

C360 - 1 pole AC and bi-directional DC NO contactors for railway applications

Compact single-pole NO contactors for AC and DC up to 1,500 volt rated insulation voltage. Making current up to 2,500 amps; conventional thermal current up to 500 amps; short-time current up to 3,000 amps.

The bi-directional DC contactors switch high powers in a small space. With a making capacity of up to 2,500 amps, the compact switchgear is suitable for applications with high inrush current or high capacities. All versions can continuously conduct up to 500 amps. In the event of a short circuit,

3,000 amps, can even flow for one second without the contacts welding.

The full bi-directionality is important for many applications in railway vehicles. Many design variants are also available, matched to a wide range of applications, e.g. as the main contactor in traction and auxiliary converters of battery and hybrid vehicles or as a disconnecter in battery circuits with high currents.

Features

- Compact dimensions - high rated insulation voltage U_i up to 1,500 volts**
Small dimensions - great performance! Nevertheless, all the air gaps in the contact area have been generously dimensioned. The rated insulation voltage is 1,500 volts. The arc chamber of the C360 is made of plastic. This is efficient and saves weight.
- High making capacity I_{cm} of up to 2,500 amps**
The C360 can switch on a current of up to 2,500 amps (monostable design in a horizontal installation position; L/R = 0 ms). A PWM controller regulates the coil current and ensures low-bounce switch on as well as a low holding power. High contact forces and optimised silver contacts both contribute to the excellent making capacity.
- High thermal continuous current I_{th} of up to 500 amps**
All versions of the C360 can continuously carry up to 500 amps. (Cross-section of the connections: 185 mm², maximum ambient temperature: 85° C; terminal heating: +65 Kelvin). The value is achieved through very high contact forces.
- High short-time withstand current rating I_{cw} of up to 3,000 amps**
The C360 can carry a current of up to 3,000 amps for one second without the contacts welding. This is enough time for the short circuit fuse to trip. The short-time withstand current rating is based on high contact forces and optimised silver contacts.
- Full bi-directionality - reliable disconnection of high performances**
All versions of the C360 can reliably disconnect high currents and voltages, irrespective of the current direction. These properties are achieved in the A and K versions through the special arrangement of blowout magnets and arcing chambers, high contact forces and generously dimensioned clearances in the contact area.
- Auxiliary switch with mirror contact function**
Series C360 contactors are equipped with auxiliary switches with mirror contact function in accordance with DIN EN IEC 60947-4-1, annex F. Mirror contacts are required for the feedback circuits in safety controls. Mirror contacts ensure that the NC contact of the auxiliary contact is not closed at the same time as the NO main contact.

Standards

Contactors meet requirements for railway applications to:

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

IEC 61373:2010

Railway applications - Rolling stock equipment - Shock and vibration tests

IEC 62497-1:2010

Railway applications - Insulation coordination - Part 1: Basic requirements - Clearances and creepage distances for all electrical and electronic equipment

Reliable, robust and economical

Contactors of the C360 series are designed for continuous currents of 150 amps, 300 amps and 500 amps. The switchgear has both high making and breaking capacities, and a high short-time withstand current. This ensures high operational safety. An integrated electronic coil control ensures a constant and reliable switching behaviour independent of the ambient temperature. In addition, the energy consumption and associated heat development of the monostable design is noticeably reduced when switched on.

Inherent to its design, the bistable version consumes no power in either end positions.

Dependent on the application, high requirements can be placed on electromechanical components. The new DC contactors are highly resistant to shock and vibration loads and meet the high requirements of ISO 16750.

Ordering key

C360A/500 24I-V1

Series, contact configuration
C360 1-pole NO contactor, AC and DC bi-directional

Version
K $U_e = 1.500 \text{ V DC}$, large arc chamber
A $U_e = 1.000 \text{ V DC}$, small arc chamber
S $U_e = 60 \text{ V DC}$, w/o arc chamber

Conv. thermal current
150 $I_{th} = 150 \text{ A}$
300 $I_{th} = 300 \text{ A}$
500 $I_{th} = 500 \text{ A}$

Coil voltage

	Monostable	Bistable
24	$U_s = 12 \dots 32 \text{ V DC}$	$U_s = 24 \text{ V DC}$, coil tolerance $-30 \% \dots +25 \%$
36	$U_s = 23 \dots 60 \text{ V DC}$ (also suitable for 48 V DC)	
110	$U_s = 50.4 \dots 137,5 \text{ V DC}$ (also suitable for 72 V DC)	

* nur $U_s = 24 \text{ V DC}$

Auxiliary switches, number / type
--- **V0**
S880 W1R6 k / 1x **V1**
S880 W1R6 k / 2x **V2**

Coil design
Monostabil mit integriertem PWM-Modul **I**
Bistabil ohne PWM-Modul* **B**

Accessories
C360-TP Deflection shield, C360A/... only

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.

Applications

Thanks to many years of experience and competence developing electromechanical switchgear and the mastering DC arcs, Schaltbau has developed an innovative solution with new DC contactors that significantly simplifies applications with DC switching technology. The C360 series is therefore suitable for

universal use in railway networks as a DC contactor for traction and auxiliary converters. As the switchgear also reliably masters switching in both current directions, it is ideally suited for applications with energy recovery. Typical examples are traction batteries that are charged and discharged during operation.

Traction contactors for battery or hybrid vehicles

Main contactors in combination with a precharging contactor in traction converter of locomotives, railcars and trams

Contactor for auxiliary converter

Main contactors in combination with a precharging contactor in auxiliary converter of locomotives, railcars and trams

Disconnecting contactors in battery circuits

- Disconnecting contactors for battery-powered functions in locomotives and multiple units
- Contactors for battery-powered functions in passenger coaches
- Deep discharge protection for batteries in emergency power supplies



C360K/ - 1 pole NO contactor
AC or bi-directional DC

- Large arc chamber for significantly higher breaking capacity
- Rated insulation voltage U_i up to 1,500 V
- Rated short-circuit making capacity I_{cm} up to 2,500 A
- Conventional free air thermal current I_{th} up to 500 A
- Rated short-time withstand current I_{cw} up to 3,000 A

Arc chamber main contact system
Highly efficient plastic arc chamber with permanent magnetic blowing

Aux. switch
S880, SPDT, flat tabs 2.8 x 0.5 mm

Coil terminal
Flat tabs 6.3 x 0.8 mm

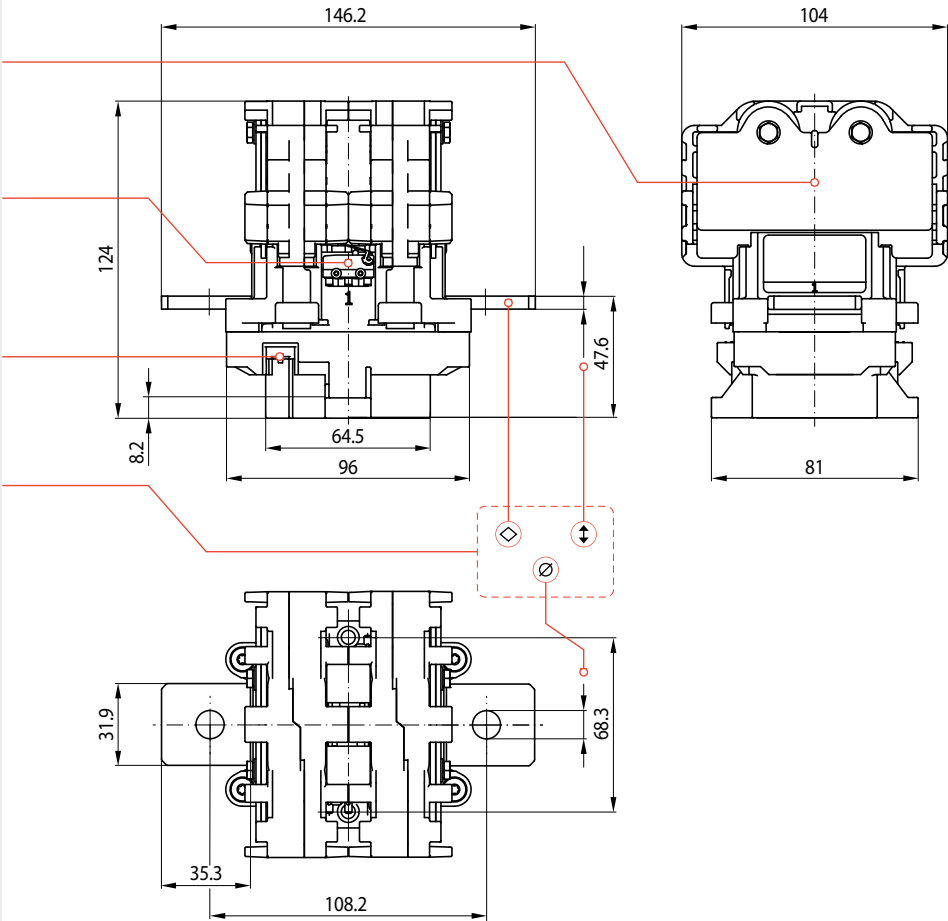
Main contact terminals	
Series	Material
C360K/150 ...	Copper
C360K/300 ...	Copper
C360K/500 ...	Copper, silver plated
Series	Thickness
C360K/150 ...	3 mm
C360K/300 ...	5 mm
C360K/500 ...	5 mm
Series	Diameter
C360K/150 ...	Ø 9 mm
C360K/300 ...	Ø 11 mm
C360K/500 ...	Ø 11 mm

Circuit diagram






	Monostable *	Bistable **
C360K/... Main contacts 1x NO Number of auxiliary switches none		
C360K/... Main contacts 1x NO Number of auxiliary switches*** 1x SPDT S880 W1R6 k		
C360K/... Main contacts 1x NO Number of auxiliary switches*** 2x SPDT S880 W1R6 k		

* Coil suppression integrated, additional circuit is not allowed!
** Switching by reversing the polarity, voltage pulse 0.5 sec max.
*** Auxiliary switches with mirror contact function according to EN 60947-4-1, annex F

Dimension diagram C360K/...



Specifications - Version «K» for $U_e = 1,500 \text{ V DC}$

Series		C360K/150	C360K/300	C360K/500
Type of voltage		DC, bi-directional / AC, f ≤ 60 Hz, 1,000 V max.		
Main contacts, configuration		1x NO		
General electrical ratings of main circuit				
Rated operational voltage U _r	max.	1,000 V @ PD3 / 1,500 V @ PD2		
Rated insulation voltage U _{Nm}		1,000 V @ PD3 / 1,500 V @ PD2		
Rated impulse withstand voltage U _{Ni}		10 kV		
Pollution degree / Overvoltage category		PD2, PD3: see U _{Nm} / OV3		
Conventional free air thermal current I _{th}	T _a = 40° C T _a = 70° C	150 A * 150 A	300 A * 300 A	500 A 400 A
Power dissipation per pole	I _{th} @ 40 °C, typ.	3.5 W	11 W	30 W
Pole impedance	typ.	150 μΩ	120 μΩ	120 μΩ
Geräteklasse	IEC 60077-2		B	
Rated short-circuit breaking capacity				
DC	I _r @ L/R = 1 ms / U _r = 900 V		150 A	
AC	I _r @ cosφ = 0.8 / U _r = 900 V		420 A	
Rated short-time withstand current I _{cw}	t = 0,1 s t = 1 s		4,000 A 3,000 A	
Critical current range		none	none	none
Additional electrical ratings of main circuit				
Conventional free air thermal current I _{th}	T _a = 85 °C (cross section) Terminal heating	200 A (50 mm²) 45 K	350 A (120 mm²) 45 K	500 A (185 mm²) 65 K
Short circuit protection device for contactors (w/o thermal overload relay)	I _{prosp} = 10 kA DC, L/R = 5 ms, welding proof Fuse: SIBA SQB-DC 2 (aR Type)	200 A	315 A	2x 250 A (parallel)
Rated short-circuit making capacity I _{cm} (L/R = 0 ms)		monostable: horizontal: 2,500 A, vertical: 2,000 A		
For mono- or bistable drive (depending on mounting position)		bistable: horizontal: 750 A, vertical: 750 A		
Breaking capacity	L _{max} = 0.25 mH, other values on request			
Single contact	U _r = 1.500 V / I _r = 300 A U _r = 1.000 V / I _r = 500 A U _r = 900 V / I _r = 700 A U _r = 750 V / I _r = 1.000 A U _r = 500 V / I _r = 1.500 A		10 operations 20 operations 25 operations 10 operations 15 operations	
Double contact circuit	U _r = 1.500 V / I _r = 1.000 A U _r = 1.000 V / I _r = 1.700 A		10 operations 15 operations	
Electrical endurance		6,000 operations @ DC (L/R = 1 ms), AC (cosφ = 0.8): 750 V / 60 A		
Main contacts				
Contact material		AgSnO ₂	AgSnO ₂	AgSnO ₂
Terminals		M8	M10	M10
Torque		4.8 ... 6 Nm	8 ... 10 Nm	8 ... 10 Nm
Auxiliary contacts				
Number, configuration / Contact material		2x S880 W1R6 k max. / Silver		
Making / Breaking capacity S880		AC-15: 230 V AC / 1.0 A DC-13: 60 V DC / 0.5 A		
Minimum voltage / Current		5 V / 5 mA		
Terminals		Flat quick connect 2.8 x 0.5 mm		
Magnetic drive - monostable				
Rated control supply voltage U _s		24 / 36 ... 48 / 72 ... 110 V DC		
Pollution degree / Overvoltage category		PD3 / OV2		
Coil tolerance		-30 % ... +25 % U _s		
Coil power dissipation, max. (T _a = 20 °C / U _s)				
Pull-In power (0.2 s) / Holding power		50 W / 2.6 W		
Frequency of operation (operations per hour, no load)	T _a = 20 °C / 70 °C	3,600 h ⁻¹ / 1,800 h ⁻¹		
Pull-in time (T _a = 20 °C / U _s) / Drop-off time (T _a = 20 °C / U _s)	typ.	33 ms / 25 ms		
Coil suppression (integrated) / Coil terminal		Suppressor diode / Flat tap 6.3 x 0.8 mm		
Magnetic drive - bistable				
Rated control supply voltage U _s		24 V DC @ ON time 0.1 ... 0.5 s max.		
Pollution degree / Overvoltage category		PD3 / OV2		
Coil tolerance		-30 % ... +25 % U _s		
Coil power dissipation, max. (T _a = 20 °C / U _s)		35 W		
Frequency of operation (operations per hour, no load)	T _a = 20 °C / 70 °C	1,800 h ⁻¹ / 1,800 h ⁻¹		
Pull-in time (T _a = 20 °C / U _s) / Drop-off time (T _a = 20 °C / U _s)	typ.	20 ms / 13 ms		
Coil suppression (integrated) / Coil terminal		Suppressor diode / Flat tap 6.3 x 0.8 mm		
Mounting position		vertical / horizontal (not upside-down, see page 11)		
Degree of protection	IEC 60529	IP00		
Mechanical endurance	monostable / bistable	2,000,000 operations / 100,000 operations (Replace auxiliary switch after 1,000,000 switching cycles)		
Shock / Vibration	IEC 61373 / ISO 16750-3	Category 1, Class B / Class C		
Temperatures	Operating temperature / Storage temperature Altitude / Humidity (EN 50125-1)	-40 °C ... +85 °C / -40 °C ... +85 °C < 4,500 m @ U _i = 1,000 V, < 3,500 m @ U _i = 1,500 V / < 75 % on an annual average		
Approvals		    		
Weight		1.24 kg	1.31 kg	1.35 kg
* Higher values on request		Subject to change		



C360A/ - 1 pole NO contactor
AC or bi-directional DC

- Rated insulation voltage U_i up to 1,500 V, version with small arc chamber
- Rated short-circuit making capacity I_{cm} up to 2,500 A
- Conventional free air thermal current I_{th} up to 500 A
- Rated short-time withstand current I_{cw} up to 3,000 A

Arc chamber cover
Reduces the distance to live, metallic or grounded parts

Arc chamber main contact system
Highly efficient plastic arc chamber with permanent magnetic blowing

Aux. switch
S880, SPDT, flat tabs 2.8 x 0.5 mm

Coil terminal
Flat tabs 6.3 x 0.8 mm

Main contact terminals

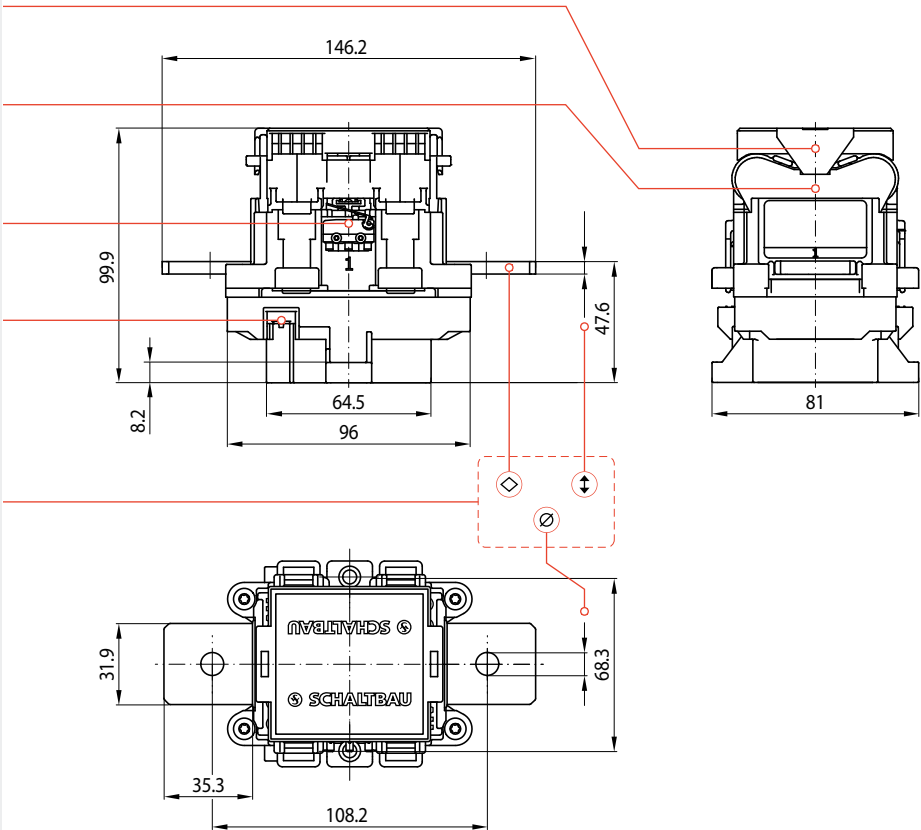
Series	Material	
C360A/150 ...	Copper	
C360A/300 ...	Copper	
C360A/500 ...	Copper, silver plated	
Series	Thickness	
C360A/150 ...	3 mm	
C360A/300 ...	5 mm	
C360A/500 ...	5 mm	
Series	Diameter	
C360A/150 ...	Ø 9 mm	
C360A/300 ...	Ø 11 mm	
C360A/500 ...	Ø 11 mm	

Circuit diagram






	Monostable *	Bistable **
C360A/... Main contacts 1x NO Number of auxiliary switches none		
C360A/... Main contacts 1x NO Number of auxiliary switches*** 1x SPDT S880 W1R6 k		
C360A/... Main contacts 1x NO Number of auxiliary switches*** 2x SPDT S880 W1R6 k		

* Coil suppression integrated, additional circuit is not allowed!
** Switching by reversing the polarity, voltage pulse 0.5 sec max.
*** Auxiliary switches with mirror contact function according to EN 60947-4-1, annex F

Dimension diagram C360A/...



Specifications - Version «A» for $U_e = 1,000 \text{ V DC}$

Series	C360A/150		C360A/300	C360A/500
Type of voltage	DC, bi-directional / AC, f ≤ 60 Hz, 1,000 V max.			
Main contacts, configuration	1x NO			
General electrical ratings of main circuit				
Rated operational voltage U _r	max.	1,000 V @ PD3 / 1,500 V @ PD2		
Rated insulation voltage U _{Nm}		1,000 V @ PD3 / 1,500 V @ PD2		
Rated impulse withstand voltage U _{Ni}		10 kV		
Pollution degree / Overvoltage category		PD2, PD3: see U _{Nm} / OV3		
Conventional free air thermal current I _{th}	T _a = 40° C T _a = 70° C	150 A * 150 A	300 A * 300 A	500 A 400 A
Power dissipation per pole	I _{th} @ 40 °C, typ.	3.5 W	11 W	30 W
Pole impedance	typ.	150 μΩ	120 μΩ	120 μΩ
Gerätekategorie	IEC 60077-2	B		
Rated short-circuit breaking capacity				
DC	I _r @ L/R = 1 ms / U _r = 900 V		150 A	
AC	I _r @ cosφ = 0.8 / U _r = 900 V		420 A	
Rated short-time withstand current I _{CW}	t = 0,1 s t = 1 s		4,000 A 3,000 A	
Critical current range		none	none	none
Additional electrical ratings of main circuit				
Conventional free air thermal current I _{th}	T _a = 85 °C (cross section) Terminal heating	200 A (50 mm ²) 45 K	350 A (120 mm ²) 45 K	500 A (185 mm ²) 65 K
Short circuit protection device for contactors (w/o thermal overload relay)				
I _{prosp} = 10 kA DC, L/R = 5 ms, welding proof Fuse: SIBA SQB-DC 2 (aR Type)		200 A	315 A	2x 250 A (parallel)
Rated short-circuit making capacity I _{cm} (L/R = 0 ms) For mono- or bistable drive (depending on mounting position)		monostable: horizontal: 2,500 A, vertical: 2,000 A bistable: horizontal: 750 A, vertical: 750 A		
Breaking capacity	L _{max} = 0.25 mH, other values on request			
Single contact	U _r = 1,500 V / I _r = 50 A U _r = 900 V / I _r = 400 A U _r = 750 V / I _r = 500 A U _r = 500 V / I _r = 800 A		60 operations 60 operations 60 operations 60 operations	
Double contact circuit	U _r = 1,500 V / I _r = 500 A U _r = 1,000 V / I _r = 800 A		60 operations 60 operations	
Electrical endurance		6,000 operations @ DC (L/R = 1 ms), AC (cosφ = 0.8): 750 V / 60 A		
Main contacts				
Contact material		AgSnO ₂	AgSnO ₂	AgSnO ₂
Terminals		M8	M10	M10
Torque		4.8 ... 6 Nm	8 ... 10 Nm	8 ... 10 Nm
Auxiliary contacts				
Number, configuration / Contact material		2x S880 W1R6 k max. / Silver		
Making / Breaking capacity S880		AC-15: 230 V AC / 1.0 A DC-13: 60 V DC / 0.5 A		
Minimum voltage / Current		5 V / 5 mA		
Terminals		Flat quick connect 2.8 x 0.5 mm		
Magnetic drive - monostable				
Rated control supply voltage U _s		24 / 36 ... 48 / 72 ... 110 V DC		
Pollution degree / Overvoltage category		PD3 / OV2		
Coil tolerance		-30 % ... +25 % U _s		
Coil power dissipation, max. (T _a = 20 °C / U _s)				
Pull-In power (0.2 s) / Holding power		50 W / 2.6 W		
Frequency of operation (operations per hour, no load)	T _a = 20 °C / 70 °C	3,600 h ⁻¹ / 1,800 h ⁻¹		
Pull-in time (T _a = 20 °C / U _s) / Drop-off time (T _a = 20 °C / U _s)	typ.	33 ms / 25 ms		
Coil suppression (integrated) / Coil terminal		Suppressor diode / Flat tap 6.3 x 0.8 mm		
Magnetic drive - bistable				
Rated control supply voltage U _s		24 V DC @ ON time 0.1 ... 0.5 s max.		
Pollution degree / Overvoltage category		PD3 / OV2		
Coil tolerance		-30 % ... +25 % U _s		
Coil power dissipation, max. (T _a = 20 °C / U _s)		35 W		
Frequency of operation (operations per hour, no load)	T _a = 20 °C / 70 °C	1,800 h ⁻¹ / 1,800 h ⁻¹		
Pull-in time (T _a = 20 °C / U _s) / Drop-off time (T _a = 20 °C / U _s)	typ.	20 ms / 13 ms		
Coil suppression (integrated) / Coil terminal		Suppressor diode / Flat tap 6.3 x 0.8 mm		
Mounting position				
		vertical / horizontal (not upside-down, see page 11)		
Degree of protection	IEC 60529	IP00		
Mechanical endurance	monostable / bistable	2,000,000 operations / 100,000 operations (Replace auxiliary switch after 1,000,000 switching cycles)		
Shock / Vibration	IEC 61373 / ISO 16750-3	Category 1, Class B / Class C		
Temperatures	Operating temperature / Storage temperature Altitude / Humidity (EN 50125-1)	-40 °C ... +85 °C / -40 °C ... +85 °C < 4,500 m @ U _i = 1,000 V, < 3,500 m @ U _i = 1,500 V / < 75 % on an annual average		
Approvals		    		
Weight		0.83 kg	0.90 kg	0.95 kg

* Higher values on request



C360S/ - 1 pole NO contactor
AC or bi-directional DC

- Rated insulation voltage U_i up to 1,500 V, version without arc chamber
- Rated short-circuit making capacity I_{cm} up to 2,500 A
- Conventional free air thermal current I_{th} up to 500 A
- Rated short-time withstand current I_{cw} up to 3,000 A

Switching chamber
Main contact system w/o arc chamber

Aux. switch
S880, SPDT, flat tabs 2.8 x 0.5 mm

Coil terminal
Flat tabs 6.3 x 0.8 mm

Main contact terminals

Series	Material	⊙
C360S/150 ...	Copper	
C360S/300 ...	Copper	
C360S/500 ...	Copper, silver plated	
Series	Thickness	⬆
C360S/150 ...	3 mm	
C360S/300 ...	5 mm	
C360S/500 ...	5 mm	
Series	Diameter	⊘
C360S/150 ...	Ø 9 mm	
C360S/300 ...	Ø 11 mm	
C360S/500 ...	Ø 11 mm	

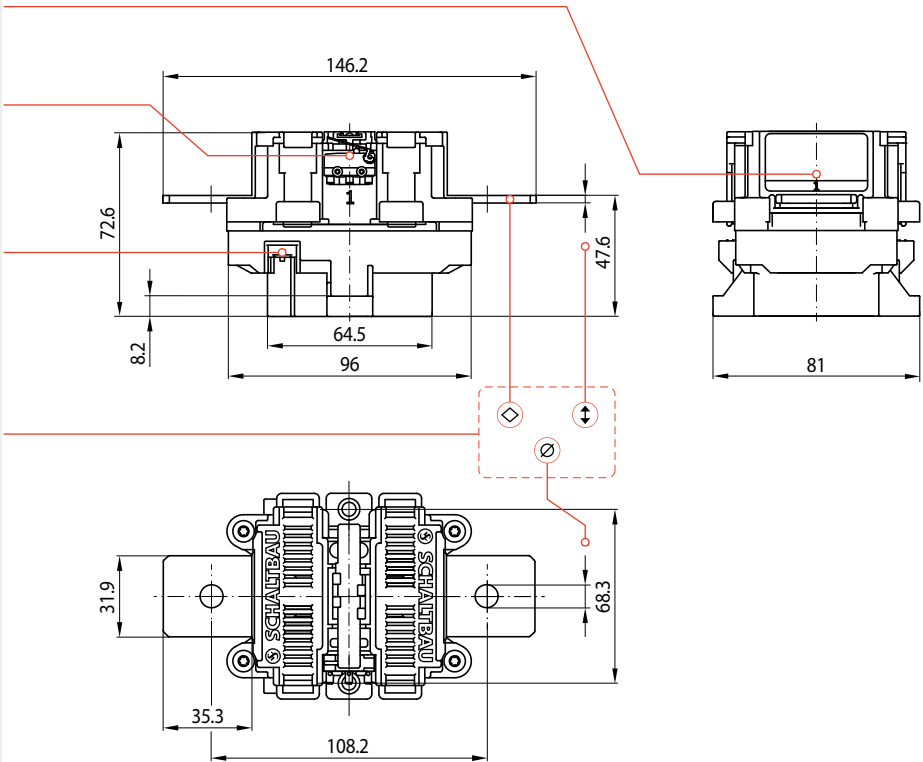
Circuit diagram

	Monostable *	Bistable **
C360S/... Main contacts 1x NO Number of auxiliary switches none		
C360S/... Main contacts 1x NO Number of auxiliary switches*** 1x SPDT S880 W1R6 k		






C360S/... Main contacts 1x NO Number of auxiliary switches*** 2x SPDT S880 W1R6 k		
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* Coil suppression integrated, additional circuit is not allowed!
** Switching by reversing the polarity, voltage pulse 0.5 sec max.
*** Auxiliary switches with mirror contact function according to EN 60947-4-1, annex F

Dimension diagram C360S/...



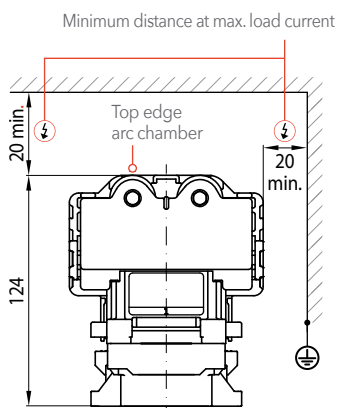
Specifications - Version «S» for $U_e = 60 \text{ V DC}$

Series		C360S/150	C360S/300	C360S/500
Type of voltage		DC, bi-directional / AC, f ≤ 60 Hz, 1,000 V max.		
Main contacts, configuration		1x NO		
General electrical ratings of main circuit				
Rated operational voltage U _r	max.	60 V		
Rated insulation voltage U _{Nm}		1,000 V @ PD3 / 1,500 V @ PD2		
Rated impulse withstand voltage U _{Ni}		10 kV		
Pollution degree / Overvoltage category		PD2, PD3: see U _{Nm} / OV3		
Conventional free air thermal current I _{th}	T _a = 40° C T _a = 70° C	150 A * 150 A	300 A * 300 A	500 A 400 A
Power dissipation per pole	I _{th} @ 40 °C, typ.	3.5 W	11 W	30 W
Pole impedance	typ.	150 μΩ	120 μΩ	120 μΩ
Gerätekatégorie	IEC 60077-2	B		
Rated short-time withstand current I _{cw}	t = 0,1 s t = 1 s	4,000 A 3,000 A		
Critical current range		none	none	none
Additional electrical ratings of main circuit				
Conventional free air thermal current I _{th}	T _a = 85 °C (cross section) Terminal heating	200 A (50 mm²) 45 K	350 A (120 mm²) 45 K	500 A (185 mm²) 65 K
Short circuit protection device for contactors (w/o thermal overload relay) I _{prosp} = 10 kA DC, L/R = 5 ms, welding proof Fuse: SIBA SQB-DC 2 (aR Type)		200 A	315 A	2x 250 A (parallel)
Rated short-circuit making capacity I _{cm} (L/R = 0 ms) For mono- or bistable drive (depending on mounting position)		monostable: horizontal: 2,500 A, vertical: 2,000 A bistable: horizontal: 750 A, vertical: 750 A		
Breaking capacity (L/R = 0.1 ms)	U _r = 60 V / I _r = 2,000 A U _r = 96 V / I _r = 1,300 A	60 operations 60 operations		
Electrical endurance		10,000 operations @ DC (L/R = 1 ms), AC (cosφ = 0.8): 48 V / 150 A	10,000 operations @ DC (L/R = 1 ms), AC (cosφ = 0.8): 48 V / 300 A	10,000 operations @ DC (L/R = 1 ms), AC (cosφ = 0.8): 48 V / 500 A
Main contacts				
Contact material		AgSnO ₂	AgSnO ₂	AgSnO ₂
Terminals		M8	M10	M10
Torque		4.8 ... 6 Nm	8 ... 10 Nm	8 ... 10 Nm
Auxiliary contacts				
Number, configuration / Contact material		2x S880 W1R6 k max. / Silver		
Making / Breaking capacity S880		AC-15: 230 V AC / 1.0 A DC-13: 60 V DC / 0.5 A		
Minimum voltage / Current		5 V / 5 mA		
Terminals		Flat quick connect 2.8 x 0.5 mm		
Magnetic drive - monostable)				
Rated control supply voltage U _s Pollution degree / Overvoltage category Coil tolerance		24 / 36 ... 48 / 72 ... 110 V DC PD3 / OV2 -30 % ... +25 % U _s		
Coil power dissipation, max. (T _a = 20 °C / U _s) Pull-In power (0.2 s) / Holding power		50 W / 2.6 W		
Frequency of operation (operations per hour, no load)	T _a = 20 °C / 70 °C	3,600 h ⁻¹ / 1,800 h ⁻¹		
Pull-in time (T _a = 20 °C / U _s) / Drop-off time (T _a = 20 °C / U _s) Coil suppression (integrated) / Coil terminal	typ.	33 ms / 25 ms Suppressor diode / Flat tap 6.3 x 0.8 mm		
Magnetic drive - bistable				
Rated control supply voltage U _s Pollution degree / Overvoltage category Coil tolerance		24 V DC @ ON time 0.1 ... 0.5 s max. PD3 / OV2 -30 % ... +25 % U _s		
Coil power dissipation, max. (Ta = 20 °C / U _s)		35 W		
Frequency of operation (operations per hour, no load)	T _a = 20 °C / 70 °C	1,800 h ⁻¹ / 1,800 h ⁻¹		
Pull-in time (T _a = 20 °C / U _s) / Drop-off time (T _a = 20 °C / U _s) Coil suppression (integrated) / Coil terminal	typ.	20 ms / 13 ms Suppressor diode / Flat tap 6.3 x 0.8 mm		
Mounting position		vertical / horizontal (not upside-down, see page 11)		
Degree of protection	IEC 60529	IP00		
Mechanical endurance	monostable / bistable	2,000,000 operations / 100,000 operations (Replace auxiliary switch after 1,000,000 switching cycles)		
Shock / Vibration	IEC 61373 / ISO 16750-3	Category 1, Class B / Class C		
Temperatures	Operating temperature / Storage temperature Altitude / Humidity (EN 50125-1)	-40 °C ... +85 °C / -40 °C ... +85 °C < 4,500 m @ Ui = 1,000 V, < 3,500 m @ Ui = 1,500 V / < 75 % on an annual average		
Approvals		    		
Weight		0.55 kg	0.63 kg	0.65 kg
* Higher values on request *2 Operating conditions on request		Subject to change		

Minimum distances, deflection shields

C360K/...

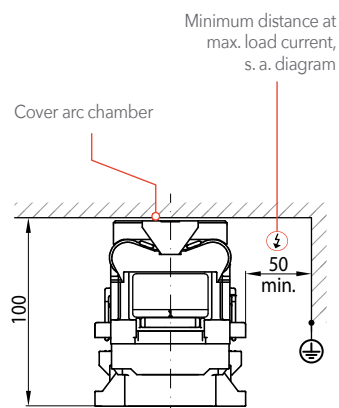
with large arc chamber



For the C360K/150, C360K/300 and C360K/500 series there is a minimum distance of 20 mm to magnetically active, live or earthed parts.

C360A/...

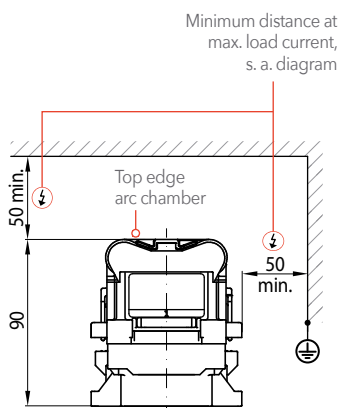
with arc chamber cover



The extinguishing chamber cover is part of the standard scope of delivery for the C360A/150, C360A/300 and C360A/500 series.

C360A/...

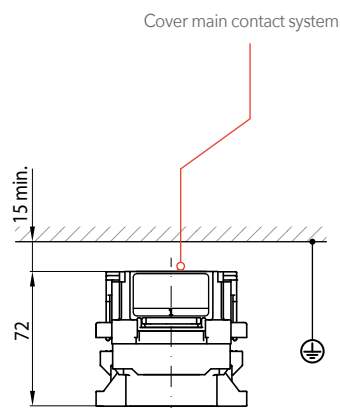
w/o arc chamber cover



It is permissible to use the C360A/150, C360A/300 and C360A/500 series without arc chamber cover, taking into account additional clearance dimensions.

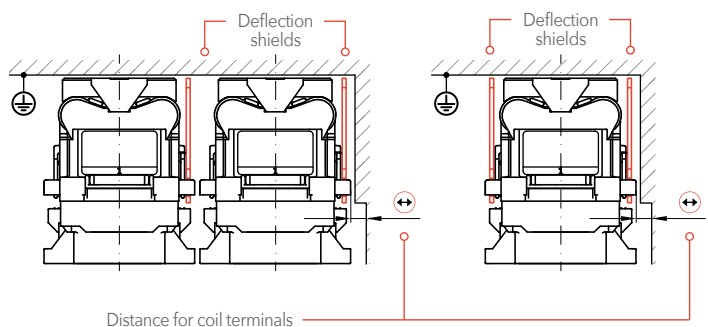
C360S/...

w/o arc chamber



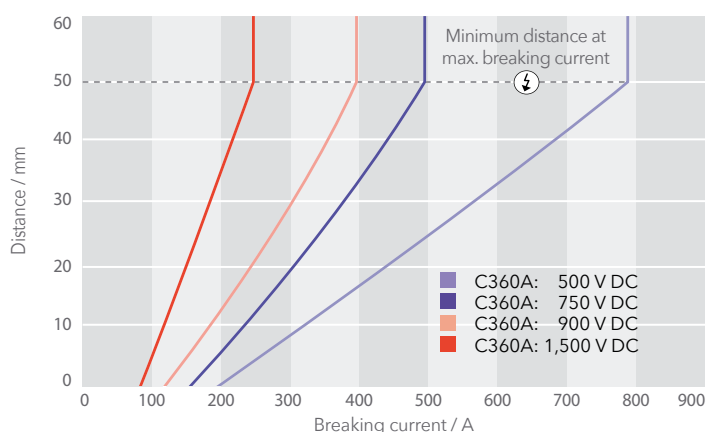
For the C360S/150, C360S/300 and C360S/500 series there is a minimum distance of 15 mm to magnetically active, live or earthed parts.

Insertable deflection shields



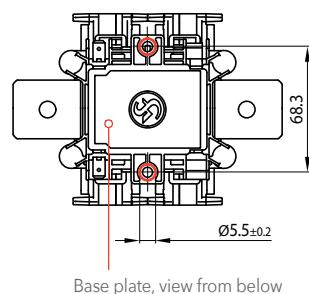
i C360A/... series only:
The use of insertable deflection shields reduces the minimum distance to 0 mm. Without deflection shields, the minimum distance of the contactors, depending on the arrangement, can increase to 100 mm.

Minimum distances ⚡ to live or earthed parts

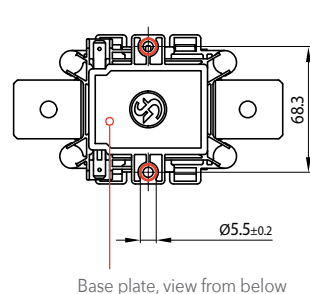


Mounting holes

C360K/...

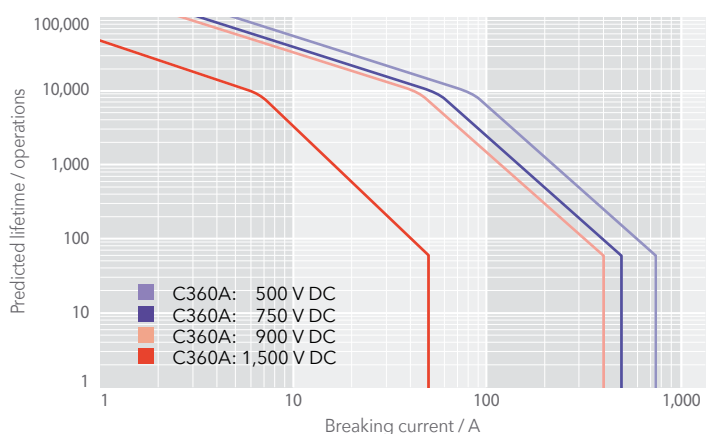


C360A/..., C360S/...



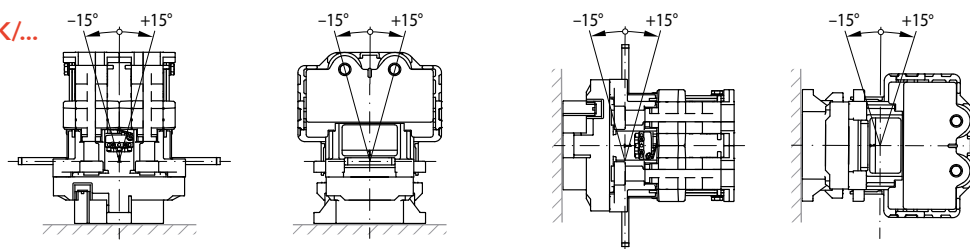
Electrical endurance

Predicted electrical endurance as a function of the breaking current

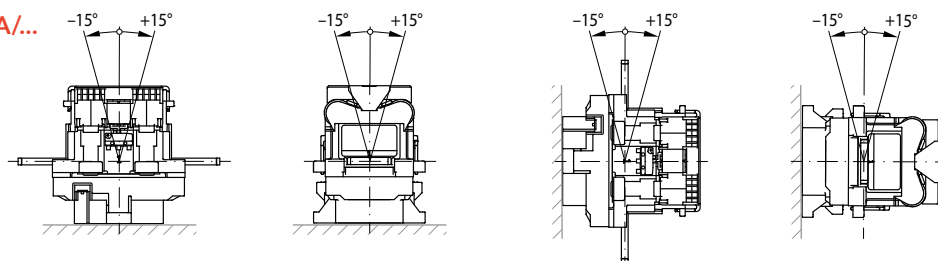


Mounting instructions

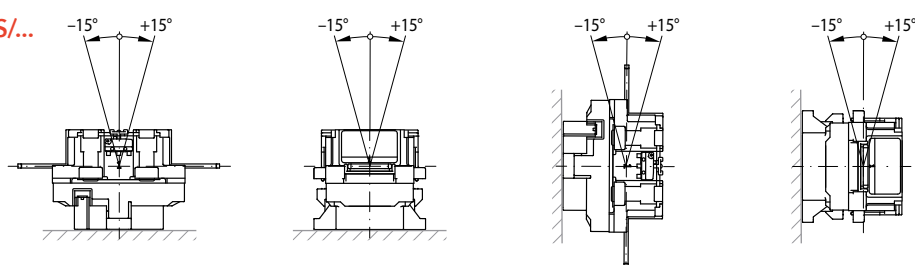
C360K/...



C360A/...



C360S/...



Horizontal assembly
«Table mounting»

Vertical assembly
«Wall mounting»

i The contactors are mounted on a mounting plate with two M5 screws.

i The contactors can be mounted horizontally or vertically on a prepared mounting plate.

! Mounting positions hanging upside down are not allowed!

Maintenance and safety instructions

Maintenance:

- C360 series contactors are basically maintenance free.
- Make regular in-depth visual inspections once or twice a year.

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 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 contactors switching behaviour. The existing opening characteristic must not be negatively influenced by parallel connection with an external diode.



For detailed maintenance, safety and mounting instructions please refer to our operating manuals > C360-M.en!

- 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.
- In general, strong electromagnetic fields can be generated in the area around the contactors. These can influence other components in the area of the contactors.
- Improper handling of the contactor, e.g. when hitting the floor with some impact, can result in breakage, visible cracks and deformation.



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.