TeSys D, K

Catalogue 2017
'S207' series contactors
for railway applications

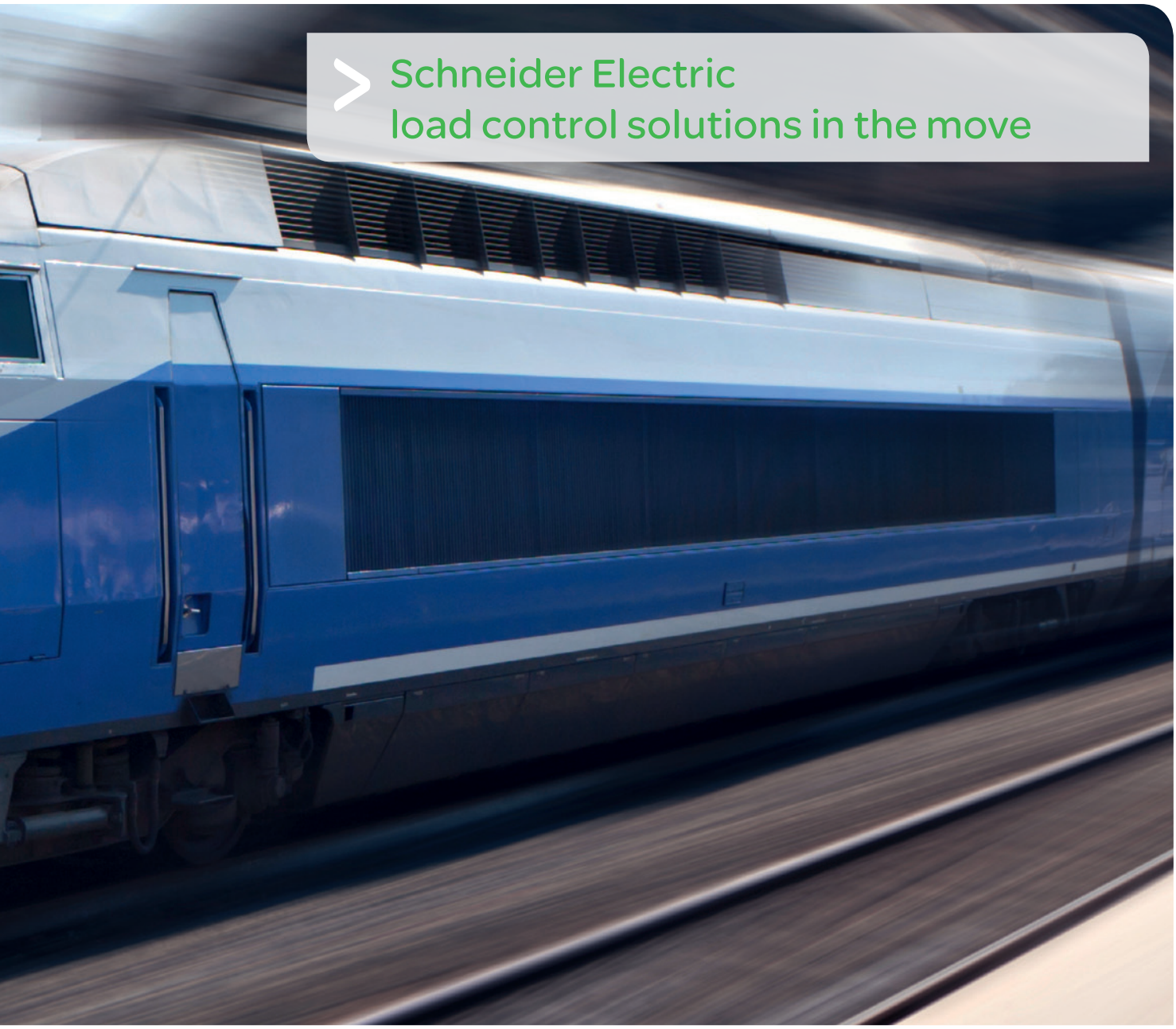
schneider-electric.com

Life Is On | Schneider Electric

TeSys D, TeSys K: S207 series
Best-in-class contactors
for **railway applications**

TeSys contactors
TeSys D, TeSys K

Used in heating, lighting, door control, signaling, brake and air conditioning compressors, TeSys D and TeSys K S207 series contactors are designed for all railway power switching and controlling applications, while complying with the railway European standard EN45545 R22 HL3.



Schneider Electric load control solutions in the move

TeSys D, TeSys K: S207 series contactors, fully compliant with railway standards

Shocks, vibrations requirements, according CEI 61373 standard tests

- Category 1: body mounted
- Class B: cubicles, subassemblies, equipment and components mounted directly on or under the car body.

Fire, smoke requirements, according EN 45545-2 Part 2, DIN 5510-2

Certificates of conformity available on our website :
www.schneider-electric.com

European standard EN 45545-2

Published in 2013 , this new standard replaces the former regulations for railway vehicles and applies to all countries in Europe.

Fire behavior of materials and components : the new European standard defines tighter requirements.

Thus, the material used in the components must provide compliant characteristics.

Contents

TeSys contactors

TeSys D, TeSys K

TeSys contactors

TeSys D S207 series - Contactors for railway applications

PB108318.eps

NEW

TeSys D - S207 series

Now made of new material,
fully EN 45545 R22 HL3 compliant,
with unchanged commercial reference.

Contactor types, covered applications:

- AC-3, up to 80 Amps
- AC-1, up to 125 Amps
- control circuits, up to 10 Amps.

Reliable and long-lasting, TeSys-D is the ultimate choice for demanding or wide power range applications

Range of 226 contactors for motors (AC-3), resistive loads (AC-1), control circuits:

3P, 4P contactors:

- AC-3 ratings / 3 poles: 9, 12, 18, 25, 32, 38, 80 A
- AC-1 ratings / 4 poles: 20, 25, 32, 40, 125 A
- 1 NO + 1 NC embedded auxiliary contact on all ratings

Contactors for control circuits:

- 5 NO or 3 NO + 2 NC
- 10 A

Common features:

- connection by lugs
- 24, 72, 96, 110 V DC coils, standard, low consumption and wide range
- Coil supply range: up to 0.7 to 1.25 Uc from -40 °C to +70 °C.

> See TeSys D S207 contactor selection tables for available combinations of features.

TeSys contactors

TeSys K S207 series - Contactors for railway applications

LP4K PB111997.eps

NEW

TeSys K - S207 series

New range of EN 45545 R22 HL3 compliant mini contactors:
- width: 45 mm
- height: 58 mm
- depth: 57 mm
- weight: 0.235 kg.

Contactor types, covered applications:

- AC-3, up to 12 Amps
- AC-1, up to 20 Amps
- control circuits, up to 10 Amps.

Simple, robust, and compact, TeSys K is optimized for common applications

Range of 33 contactors for motors (AC-3), resistive loads (AC-1), control circuits:

3P, 4P contactors:

- AC-3 ratings / 3 poles: 6, 9, 12 A
- AC-1 rating / 4 poles: 20 A
- 1 NO or 1 NC embedded auxiliary contact

Contactors for control circuits:
- 4 NO or 2 NO + 2 NC or 3 NO + 1 NC
- 10 A

Common features:

- connection by lugs
- 24, 72, 110 V DC low consumption coils,
- Coil supply range: up to 0.7 to 1.3 Uc from -40 °C to +70 °C.

> See TeSys K S207 contactor selection tables for available combinations of features.

TeSys contactors

TeSys D S207 series - Contactors for railway applications

LC1D096●●

3-pole contactors for Motor control - connection by lugs

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3 (θ ≤ 60 °C)							Rated operational current in AC-3 440 V up to	Instantaneous auxiliary contacts		Commercial reference Replace dots by coil voltage code (see chart below)		Weight
220 V 230 V	380 V 415 V	415 V	440 V	500 V	660 V 690 V	1000 V				coil with surge suppressor (1)	Coil without surge suppressor	
kW	kW	kW	kW	kW	kW	kW	A					kg
2.2	4	4	4	5.5	5.5	–	9	1	1	**LC1D096●●S207**	**LC1D096●●XS207**	0.320
3	5.5	5.5	5.5	7.5	7.5	–	12	1	1	**LC1D126●●S207**	**LC1D126●●XS207**	0.325
4	7.5	9	9	10	10	–	18	1	1	**LC1D186●●S207**	**LC1D186●●XS207**	0.330
5.5	11	11	11	15	15	–	25	1	1	**LC1D256●●S207**	**LC1D256●●XS207**	0.370
7.5	15	15	15	18.5	18.5	–	32	1	1	**LC1D326●●S207**	**LC1D326●●XS207** *	0.375
9	18.5	18.5	18.5	18.5	18.5	–	38	1	1	**LC1D386●●S207**	**LC1D386●●XS207**	0.380
22	37	45	45	55	45	45	80	1	1	–	**LC1D806●●S207**	1.590

LC1DT206●●

4-pole contactors - connection by lugs

Non inductive loads maximum current (θ ≤ 60 °C) utilisation category AC-1	Number of poles		Instantaneous auxiliary contacts		Commercial reference Replace dots by coil voltage code (see chart below)		Weight
					coil with surge suppressor (1)	Coil without surge suppressor	
A							kg
Contactors for Resistive load control							
20	4	–	1	1	**LC1DT206●●S207**	**LC1DT206●●XS207**	0.365
	2	2	1	1	**LC1D0986●●S207**	**LC1D0986●●XS207**	0.365
25	4	–	1	1	**LC1DT256●●S207**	**LC1DT256●●XS207**	0.365
	2	2	1	1	**LC1D1286●●S207**	**LC1D1286●●XS207**	0.365
32	4	–	1	1	**LC1DT326●●S207**	**LC1DT326●●XS207**	0.425
	2	2	1	1	**LC1D1886●●S207**	**LC1D1886●●XS207**	0.425
40	4	–	1	1	**LC1DT406●●S207**	**LC1DT406●●XS207**	0.425
	2	2	1	1	**LC1D2586●●S207**	**LC1D2586●●XS207**	0.425
125	4	–	–	–	–	**LP1D800046●●S207**	2.685
	2	2	–	–	–	**LP1D800086●●S207**	2.910

(1) A suppressor diode (Transil TM) in parallel with the coil prevents upstream sensitive components from damage by transient high voltage during the coil switching.

Coil voltage codes

DC Volts	24	72	96	110
Standard coils for LC1D09...D806, LC1DT20...DT40				
U 0.7…1.25 Uc	BD	SD	-	FD
Low consumption coils for LC1D09...D38, LC1DT20...DT40				
U 0.7…1.25 Uc	BL	SL	DL	FL
Coil for LP1D80				
U 0.75…1.2 Uc	BW	SW	-	FW

Characteristics: pages 12 to 15

Dimensions, schemes: page 16

TeSys contactors

TeSys D S207 series - Contactors for railway applications

PB114194.eps

CAD326●●

Contactors for control circuit - connection by lugs

Rated max operating current (Ie)	Composition		Commercial reference Replace dots by coil voltage code (see chart below)	
			coil with surge suppressor	Coil without surge suppressor
A				
5-pole contactors for control circuits				
10	3	2	**CAD326●●S207**	**CAD326●●XS207**
	5	–	**CAD506●●S207**	**CAD506●●XS207**

Coil voltage codes

DC Volts	24	72	96	110
Standard coils for CAD326, CAD506				
U 0.7…1.25 Uc	BD	SD		FD
Low consumption coils for CAD326, CAD506				
U 0.7…1.25 Uc	BL	SL	DL	FL

PB107392_L50.eps

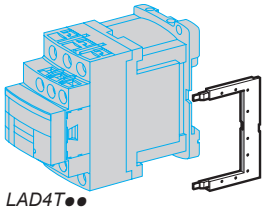
LADN●●●

Instantaneous auxiliary contact blocks for connection by lugs (1)

Clip-on mounting (2)	Number of contacts per block	Composition		Reference
Front	2	1	1	**LADN116**
		2	–	**LADN206**
		–	2	**LADN026**
	4	2	2	**LADN226**
		1	3	**LADN136**
		4	–	**LADN406**
		–	4	**LADN046**
		3	1	**LADN316**

Maximum number of auxiliary contacts that can be fitted

Contactors			Instantaneous auxiliary contact blocks		
Type	Number of poles and size		Side mounted	Front mounted	
				2 contacts	4 contacts
⎓	3P	LC1 D09…D38	–	1	or 1
		LC1 D80	–	or 1	or 1
	4P	LC1 DT20…DT40	–	1	or 1
		LC1 D80	–	and 1	or 1
LC (3)	3P	LC1 D09…D38	–	1	–
	4P	LC1 DT20…DT40	–	1	–



DF537790.eps

LAD4T●●

Bidirectional peak limiting diodes (1)

Protection provided by limiting the transient voltage to 2 Uc max.
Maximum reduction of transient voltage peaks.

Mounting	For use with contactor		Reference
	Rating	Type	
		V ⎓	
Clip-on side mounting (2)	D09…D38 (3P) DT20…DT40 (4P)	24	**LAD4TBDL**
		72	**LAD4TSDL**
		125	**LAD4TGDL**

(1) Add on auxiliary contacts and bidirectional peak limiting diodes compliancy level to EN 45545 is R22HL2.
(2) In order to install these accessories, the existing suppression device must first be removed. Clipping-on makes the electrical connection. The overrall size of the contactor remains unchanged.
(3) LC: Low comsumption.

Characteristics: pages 12 to 15

Dimensions, schemes: page 16

TeSys contactors

TeSys K S207 series - Contactors for railway applications

PB115725.eps

LC1K12016●●

3-pole contactors for Motor control - connection by lugs

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3			Rated operational current in AC-3 440 V up to	Instantaneous auxiliary contacts		Commercial reference Replace dots by coil voltage code (see chart below)	Weight
220 V 230 V	380 V 415 V	440/500 V 660/690 V					
kW	kW	kW	A				kg
1.5	2.2	3	**6**	1	–	**LC1K06106●●S207**	0.235
				–	1	**LC1K06016●●S207**	0.235
2.2	4	4	**9**	1	–	**LC1K09106●●S207**	0.235
				–	1	**LC1K09016●●S207**	0.235
3	5.5	5.5 (≤ 440)	**12**	1	–	**LC1K12106●●S207**	0.235
		4 (≥ 480)		–	1	**LC1K12016●●S207**	0.235

PB115726.eps

LC1KT

4-pole contactors - connection by lugs

Non inductive loads Category AC-1 Maximum current at (θ ≤ 50 °C)	Number of poles		Instantaneous auxiliary contacts		Commercial reference Replace dots by coil voltage code (see chart below)	Weight
A						
20	4	–	–	–	**LC1KT206●●S207**	0.235
	2	2	–	–	**LC1K0986●●S207**	0.235

PB115727.eps

CAK

4-pole contactors for Control circuit - connection by lugs

Control circuit consumption	Auxiliary contacts		Commercial reference Replace dots by coil voltage code (see chart below)	Weight
Ith = 10 A	4	–	**CAK406●●S207**	0.235
	3	1	**CAK316●●S207**	0.235
	2	2	**CAK226●●S207**	0.235

Low consumption coil voltage code

Volts DC	24	72	110
U 0.7 .....1.3 Uc	BL	SL	FL

PB111983_L50.eps

LA1KN●●

Instantaneous auxiliary contact blocks (1)

Recommended for standard applications, Clip-on front mounting, 1 block per contactor

Connection	Composition		Reference
Screw clamp terminals	2	–	**LA1KN20**
	–	2	**LA1KN02**
	1	1	**LA1KN11**

(1) Add on auxiliary contacts compliancy level to EN 45545 is R22HL2.

Characteristics: pages 17 to 20

Dimensions, schemes: page 21

TeSys D, K

Technical Data for Designers

Contents

TeSys contactors

TeSys D S207 series - Contactors for railway applications

Pole characteristics

Contactor type				LC1D096 (3P)	LC1DT206 LC1D0986 (4P)	LC1D126 (3P)	LC1DT256 LC1D1286 (4P)	LC1D186 (3P)	LC1DT326 LC1D1886 (4P)	LC1D256 (3P)	LC1DT406 LC1D2586 (4P)
Rated operational current (Ie) (Ue ≤ 440 V)	In AC-3, θ ≤ 60 °C		**A**	9		12		18		25	
	In AC-1, θ ≤ 60 °C		**A**	25	20	25	25	32	32	40	40
Rated operational voltage (Ue)	Up to		**V**	690		690		690		690	
Frequency limits	Of the operational current		**Hz**	25…400		25…400		25…400		25…400	
Conventional thermal current (Ith)	θ ≤ 60 °C		**A**	25	20	25	25	32	32	40	40
Rated making capacity (440 V)	Conforming to IEC 60947		**A**	250		250		300		450	
Rated breaking capacity (440 V)	Conforming to IEC 60947		**A**	250		250		300		450	
Permissible short time rating No current flowing for preceding 15 minutes with θ ≤ 40 °C	For 1 s		**A**	210		210		240		380	
	For 10 s		**A**	105		105		145		240	
	For 1 min		**A**	61		61		84		120	
	For 10 min		**A**	30		30		40		50	
Fuse protection against short-circuits (U ≤ 690 V)	Without thermal overload relay, gG fuse	type 1	**A**	25		40		50		63	
		type 2	**A**	20		25		35		40	
Average impedance per pole	At Ith and 50 Hz		**mΩ**	2.5		2.5		2.5		2	
Power dissipation per pole for the above operational currents	AC-3		**W**	0.20		0.36		0.8		1.25	
	AC-1		**W**	1.56		1.56		2.5		3.2	

TeSys contactors

TeSys D S207 series - Contactors for railway applications

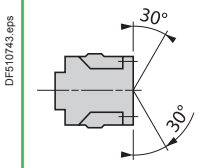
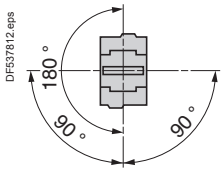
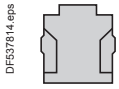
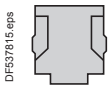
Pole characteristics

Contactor type				LC1D326 (3P)	LC1D386 (3P)	LC1D806 (3P)	LP1D8000 (4P)
Rated operational current (Ie) (Ue ≤ 440 V)	In AC-3, θ ≤ 60 °C		**A**	32	38	80	–
	In AC-1, θ ≤ 60 °C		**A**	50	50	–	125
Rated operational voltage (Ue)	Up to		**V**	690	690	1000	1000
Frequency limits	Of the operational current		**Hz**	25…400	25…400	25…400	25…400
Conventional thermal current (Ith)	θ ≤ 60 °C		**A**	50	50	125	125
Rated making capacity (440 V)	Conforming to IEC 60947		**A**	550	550	1100	1100
Rated breaking capacity (440 V)	Conforming to IEC 60947		**A**	550	550	1100	1100
Permissible short time rating No current flowing for preceding 15 minutes with θ ≤ 40 °C	For 1 s		**A**	430	430	990	990
	For 10 s		**A**	260	310	640	640
	For 1 min		**A**	138	150	320	320
	For 10 min		**A**	60	60	135	135
Fuse protection against short-circuits (U ≤ 690 V)	Without thermal overload relay, gG fuse	type 1	**A**	63	63	200	200
		type 2	**A**	63	63	160	160
Average impedance per pole	At Ith and 50 Hz		**mΩ**	2	2	0.8	0.8
Power dissipation per pole for the above operational currents	AC-3		**W**	2	3	5.1	5.1
	AC-1		**W**	5	5	12.5	12.5

TeSys contactors

TeSys D S207 series - Contactors for railway applications

Environment

Contactor type LC1			D09…D18 DT20 and DT25	D25…D38 DT32 and DT40	LC1D806 LP1D8000
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1, overvoltage category III, degree of pollution: 3	**V**	690		1000
Rated impulse withstand voltage (Uimp)	Conforming to IEC 60947	**kV**	6		8
Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, EN45545 R22HL3, EN45545 R26HL3, DIN5510		
Product certifications			IEC, CCC, EAC, UA, TR		
Degree of protection (front face)	Conforming to IEC 60529				
	Power circuit connections		Protection against direct finger contact IP20		
	Coil connection		Protection against direct finger contact IP20		
Protective treatment	Conforming to IEC 60068-2-30		"TH"		
Ambient air temperature around the device	Storage	**°C**	-60…+80		
	Operation	**°C**	-40…+70		
Maximum operating altitude	Without derating	**m**	3000		
Operating positions (1)	Without derating in the following positions (other positions: please contact us).		⎓  		
	Positions that are not permissible		For ⎓ contactors LC1 D09 to LC1 D80.  		
Flame resistance	Conforming to UL 94		V0		
	Conforming to IEC 60695-2-1	**°C**	850		
Shock resistance (2) 1/2 sine wave = 11 ms	Contactor open		10 gn	8 gn	8 gn
	Contactor closed		15 gn	15 gn	10 gn
Vibration resistance (2) 5…300 Hz	Contactor open		2 gn		
	Contactor closed		4 gn	4 gn	3 gn

(1) When mounting on a vertical rail, use a stop.
(2) Without modifying the contact states, in the most unfavourable direction (coil energised at Ue).

TeSys contactors

TeSys D S207 series - Contactors for railway applications

Power circuit connections

Contactor type LC1				LC1DT206 LC1D0986 LC1DT256 LC1D1286	LC1D096 LC1D126 LC1D186	LC1DT326 LC1D1886	LC1D256 LC1D326 LC1D386	LC1DT406 LC1D2586	LC1D806 LP1D8000
Connection by bars or lugs									
Lug external Ø			**mm**	8	9.5	9	12	9	17
Ø of screw			**mm**	M3.5			M4	M3.5	M6
Screwdriver	Philips			N° 2			N° 2	N° 2	–
	Flat screwdriver Ø			Ø6			Ø6	Ø6	Ø8
Key for hexagonal headed screw				–			–	–	10
Tightening torque			**N.m**	1.7			2.5	1.8	9

Control circuit connections

Connection by bars or lugs			
Lug external Ø		**mm**	8
Ø of screw		**mm**	M3.5
Screwdriver	Philips		N° 2
	Flat screwdriver Ø		Ø6
Tightening torque		**N.m**	1.7

d.c. control circuit characteristics

Compatible contactor types				Standard coil LC1D09…D38 LC1DT20…DT40	Low consumption coil LC1D09…D38 LC1DT20… DT40	Standard coil LC1D806	Wide range coil LP1D8000
Rated insulation voltage	Conforming to IEC 60947-1		**V**	690			
Operating ranges from -40 to +70°C	Side by side mounting			0.7...1.1 Uc	0.7...1.25 Uc	Uc	
	With 8 mm spacing			0.7...1.25 Uc	-	-	
Operating ranges from -25 to +50°C	Side by side mounting			0.7...1.25 Uc	-	0.75 ... 1.2 Uc (1)	
Average consumption at 20 °C and at Uc	⎓		**W**	5.4	4	22	
Operating time (2) average at Uc	Closing of NO contacts	"C"	**ms**	55 to 75	55 to 75	95 to 130	
	Opening of NC contacts		**ms**	45 to 65	45 to 65	-	
	Opening of NO contacts	"O"	**ms**	16 to 32 (12 to 22 ms without diode)	16 to 32 (12 to 22 ms without diode)	20 to 35	
	Closing of NC contacts		**ms**	27 to 42 (18 to 28 ms without diode)	27 to 42 (18 to 28 ms without diode)	-	
				Note: *The arcing time depends on the circuit switched by the poles. For all normal 3-phase applications, the arcing time is less than 10 ms. The load is isolated from the supply after a time equal to the sum of the opening time and the arcing time.*			
Time constant (L/R)			**ms**	28	37	75	
Mechanical durability at Uc	In millions of operating cycles			30	30	10	
Maximum operating rate at ambient temperature ≤ 60 °C	In operating cycles per hour			3600	3600	3600	

(1) From -5°C to +60°C.
(2) The operating times depend on the type of contactor electromagnet and its control mode.
The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles.
The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

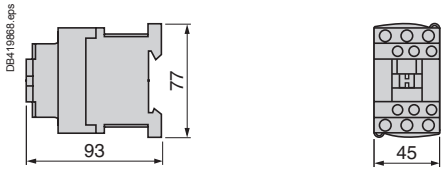
Characteristics of auxiliary contacts incorporated in the contactor

Mechanically linked contacts	Conforming to IEC 60947-5-1		Each TeSys D NO/NC embedded auxilliary contacts are certified 'mechanicaly linked'.
Mirror contact	Conforming to IEC 60947-4-1		All TeSys D NC auxilliary contacts are 'miror' certified and can be connected to a safety module.
Rated operational voltage (Ue)	Up to	**V**	690
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	**V**	690
Conventional thermal current (Ith)	For ambient temperature ≤ 60 °C	**A**	10

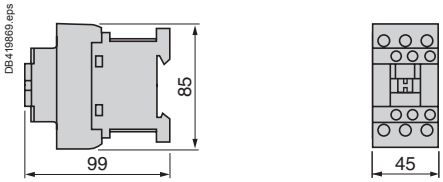
TeSys contactors

TeSys D S207 series - Contactors for railway applications

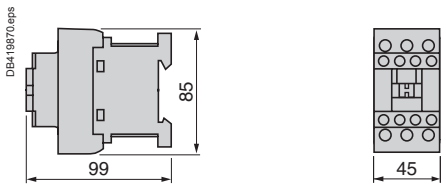
LC1D09…D18 (3-pole)



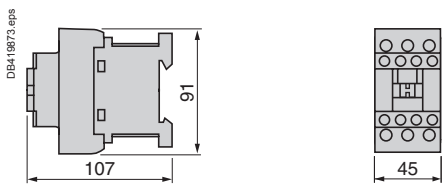
LC1D25…D38 (3-pole)



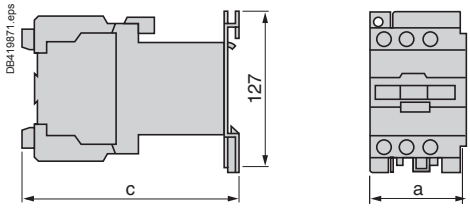
LC1DT20, DT25, D098, D128 (4-pole)



LC1DT32, DT40, D188, D258 (4-pole)



LC1D806, LP1D800046, LP1D800086

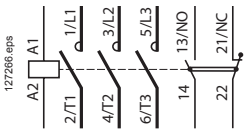


	LC1D806	LP1D800046	LP1D800086
a	85	96	96
c without cover or add-on blocks	181	181	196

Contactors

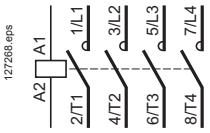
3-pole contactors

LC1D09 to D80



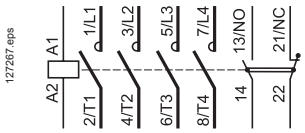
4-pole contactors

LP1D800046

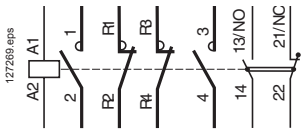


4-pole contactors

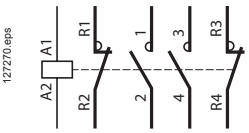
LC1DT20 to DT40



LC1D098 to LC1D258



LP1D800086

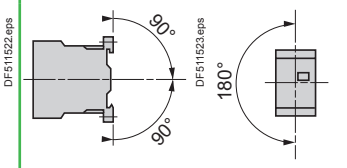


TeSys contactors

TeSys K S207 series - Contactors for railway applications

Environment characteristics

Contactor type LC1K

Conforming to standards			IEC 60947, NF C 63-110, VDE 0660, BS 5424
Authorized operating positions			Vertical axis / Horizontal axis  *Without derating* *Without derating*
Rated insulation voltage (Ui)	Conforming to IEC 60947	**V**	690
	Conforming to VDE 0110 gr C	**V**	750
	Conforming to BS 5424, NF C 20-040	**V**	690
Rated impulse withstand voltage (Uimp)		**kV**	8
Protective treatment	Conforming to IEC 60068 (DIN 50016)		"TC" (Klimafest, Climateproof)
Degree of protection	Conforming to VDE 0106		Protection against direct finger contact
Ambient air temperature around the device	Storage	**°C**	-50…+80
	Operation	**°C**	-25…+50
	Permissible	**°C**	-40…+70, for operation at Uc
Maximum operating altitude	Without derating	**m**	2000
Vibration resistance 5 ... 300 Hz	Contactor open		2 gn
	Contactor closed		4 gn
Flame resistance	Conforming to UL 94		V0
Shock resistance (1/2 sine wave, 11 ms)	Contactor open		On X axis: 6 gn On Y and Z axes: 10 gn
	Contactor closed		On X axis: 10 gn On Y and Z axes: 15 gn

Connection by lugs

Lug external Ø		**mm**	7
Ø of screw		**mm**	3.2
Screwdriver	Philips		N° 2
	Flat screwdriver Ø	**mm**	6
Tightening torque		**N.m**	1.1 recommended, 1.3 max

TeSys contactors

TeSys K S207 series - Contactors for railway applications

Pole characteristics

Type				LC1K06	LC1K09, LC1KT09, LC1KT20	LC1K12
Conventional thermal current (Ith)	For ambient temperature ≤ 50 °C		**A**	20		
Rated operational frequency			**Hz**	50/60		
Frequency limits of the operational current			**Hz**	Up to 400		
Rated operational voltage (Ue)			**V**	690		
Rated making capacity	I rms conforming to NF C 63 110 and IEC 60947		**A**	110	110	144
Rated breaking capacity	I rms conforming to NF C 63 110 and IEC 60947	220/230 V	**A**	110	110	–
		380/400 V	**A**	110	110	–
		415 V	**A**	110	110	–
		440 V	**A**	110	110	110
		500 V	**A**	80	80	80
		660/690 V	**A**	70	70	70
Permissible short time rating	In free air for a time “t” from cold state (θ ≤ 50 °C)	1 s	**A**	90	90	115
		5 s	**A**	85	85	105
		10 s	**A**	80	80	100
		30 s	**A**	60	60	75
		1 min	**A**	45	45	55
		3 min	**A**	40	40	50
		≥ 15 min	**A**	20	20	25
Short-circuit protection	gG fuse U ≤ 440 V		**A**	25		
Average impedance per pole	At Ith and 50 Hz		**mΩ**	3		
Use in category AC-1 resistive circuits, heating, lighting (Ue ≤ 440 V)	Maximum rated operational current for a temperature ≤ 50 °C		**A**	20		
	Maximum rated operational current for a temperature ≤ 70 °C		**A**	16 for Ue only		
	Rated operational current limits in relation to the on-load factor and operating frequency			On-load factor		90 %
			A	300 operating cycles/hour		13
			A	120 operating cycles/hour		15
			A	30 operating cycles/hour		19
	Increase in rated operational current by paralleling of poles			Apply the following coefficients to the above currents; these coefficients take into account an often unbalanced distribution of current between the poles		
				2 poles in parallel: K = 1.60		
				3 poles in parallel: K = 2.25		
				4 poles in parallel: K = 2.80		
Use in category AC-3 squirrel cage motors	Operational power according to the voltage. Voltage 50 or 60 Hz	115 V single-ph.	**kW**	0.37	0.55	–
		220 V single-ph.	**kW**	0.75	1.1	–
		220/230 V 3-ph.	**kW**	1.5	2.2	3
		380/415 V 3-ph.	**kW**	2.2	4	5.5
		440/480 V 3-ph.	**kW**	3	4	5.5/4 (480)
		500/600 V 3-ph.	**kW**	3	4	4
		660/690 V 3-ph.	**kW**	3	4	4
	Maximum operating rate (in operating cycles/hour in relation to % of rated power)			Op. cycles/h		600
				Power		100 %

TeSys contactors

TeSys K S207 series - Contactors for railway applications

Control circuit characteristics				
Type			**LC1K, LC1KT**	**CAK**
Rated control circuit voltage (Uc)		**V DC**	24...110	24...110
Control voltage limits (≤ 50 °C) single voltage coil	Operation		0.7…1.30 Uc	0.7...1.3 Uc
	Drop-out		≥ 0.10 Uc	≤ 0.1 Uc
Average consumption at 20 °C and at Uc	Inrush		1.8 W	1.8 W
	Sealed		1.8 W	1.8 W
Heat dissipation		**W**	1.8	1.8
Operating time at 20 °C and at Uc				
Between coil energisation and:	opening of the N/C contacts	**ms**	25…35	25...35
	closing of the N/O contacts	**ms**	30…40	30...40
Between coil de-energisation and:	opening of the N/O contacts	**ms**	10…20	10...20
	closing of the N/C contacts	**ms**	15…25	15...25
Maximum immunity to microbreaks		**ms**	2	2
Maximum operating rate	In operating cycles per hour		3600	6000
Mechanical durability at Uc In millions of operating cycles			30	30

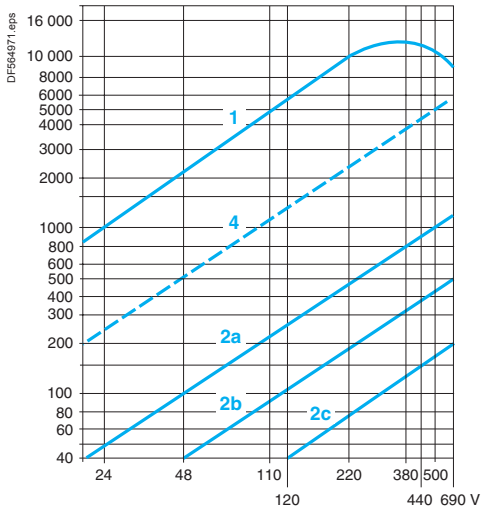
TeSys contactors

TeSys K S207 series - Contactors for railway applications

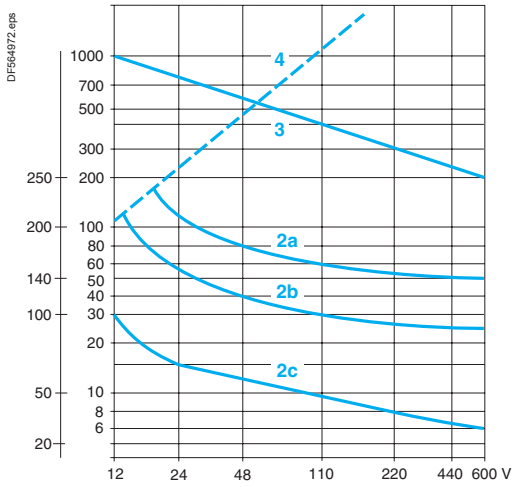
LC1K auxiliary contacts, CAK

Number of auxiliary contacts	On LP● K 3-pole			1
Rated operational voltage (Ue)	Up to		**V**	690
Rated insulation voltage (Ui)	Conforming to BS 5424		**V**	690
	Conforming to IEC 60947		**V**	690
	Conforming to VDE 0110 group C		**V**	750
	Conforming to CSA C 22-2 n° 14		**V**	600
Conventional thermal current (Ith)	For ambient temperature ≤ 50 °C		**A**	10
Frequency of the operational current			**Hz**	Up to 400
Minimum switching capacity	U min (DIN 19 240)		**V**	17
	I min		**mA**	5
Short-circuit protection	Conforming to IEC 60947 and VDE 0660, gG fuse		**A**	10
Rated making capacity	Conforming to IEC 60947	I rms	**A**	110
Short-time rating	Permissible for	1 s	**A**	80
		500 ms	**A**	90
		100 ms	**A**	110

Power broken in VA



Power broken in W



Operational power of contacts conforming to IEC 60947

a.c. supply, category AC-15

Electrical durability (valid for up to 3600 operating cycles/hour) on an inductive load such as the coil of an electromagnet: making current (cos φ 0.7) = 10 times the power broken (cos φ 0.4).

Operating cycles	V	24	48	110/ 127	220/ 230	380/ 400	440	600/ 690
1 million operating cycles	**VA**	48	96	240	440	800	880	1200
3 million operating cycles	**VA**	17	34	86	158	288	317	500
10 million operating cycles	**VA**	7	14	36	66	120	132	200
Occasional making capacity	**VA**	1000	2050	5000	10000	14000	13000	9000

d.c. supply, category DC-13

Electrical durability (valid for up to 1200 operating cycles/hour) on an inductive load such as the coil of an electromagnet, without economy resistor, the time constant increasing with the load.

Operating cycles	V	24	48	110	220	440	600
1 million operating cycles	**W**	120	80	60	52	51	50
3 million operating cycles	**W**	55	38	30	28	26	25
10 million operating cycles	**W**	15	11	9	8	7	6
Occasional making capacity	**W**	720	600	400	300	230	200

1. Breaking limit of contacts valid for:
   - maximum of 50 operating cycles at 10 s intervals (power broken = making current x cos φ 0.7).
2. Electrical durability of contacts for:
   - 1 million operating cycles (2a)
   - 3 million operating cycles (2b)
   - 10 million operating cycles (2c).
3. Breaking limit of contacts valid for:
   - maximum of 20 operating cycles at 10 s intervals with current passing for 0.5 s per operating cycle.
4. Thermal limit.

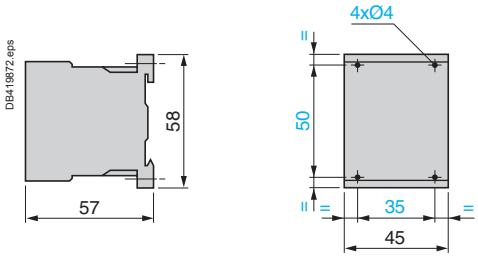
TeSys contactors

TeSys K S207 series - Contactors for railway applications

Contactors

LC1K, LC1KT, CAK

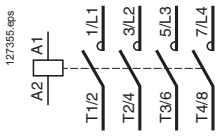
On panel



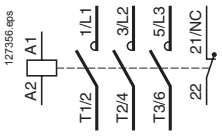
On mounting rail AM1 DP200 or AM1 DE200 (7 35 mm)

3-pole contactors

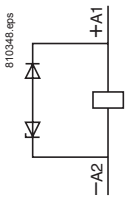
3 P + N/O



3 P + N/C

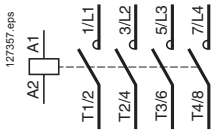


Coil diagram with integral suppression device LC1K, LC1KT

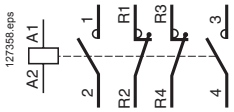


4-pole contactors

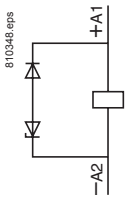
4 P



2 P N/O + 2 P N/C

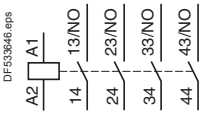


Coil diagram with integral suppression device LC1K, LC1KT

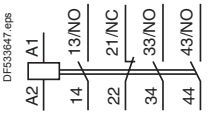


CAK - 4 poles contacts for control circuits

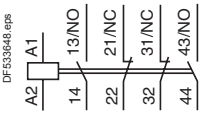
4 N/O



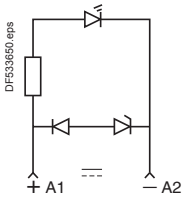
3 N/O + 1 N/C



2 N/O + 2 N/C



Coil diagram - with suppression device CAK



Green Premium™

Endorsing eco-friendly products in the industry

Green Premium™
Product

Green Premium is the only label that allows you to effectively develop and promote an environmental policy whilst preserving your business efficiency. This ecolabel guarantees compliance with up-to-date environmental regulations, but it does more than this.

Over 75% of Schneider Electric manufactured products have been awarded the Green Premium ecolabel

Discover what we mean by green ….

Check your products!

Schneider Electric's Green Premium ecolabel is committed to offering transparency, by disclosing extensive and reliable information related to the environmental impact of its products:

RoHS

Schneider Electric products are subject to RoHS requirements at a worldwide level, even for the many products that are not required to comply with the terms of the regulation. Compliance certificates are available for products that fulfil the criteria of this European initiative, which aims to eliminate hazardous substances.

REACh

Schneider Electric applies the strict REACh regulation on its products at a worldwide level, and discloses extensive information concerning the presence of SVHC (Substances of Very High Concern) in all of these products.

PEP: Product Environmental Profile

Schneider Electric publishes complete set of environmental data, including carbon footprint and energy consumption data for each of the lifecycle phases on all of its products, in compliance with the ISO 14025 PEP ecopassport program. PEP is especially useful for monitoring, controlling, saving energy, and/or reducing carbon emissions.

EoLI: End of Life Instructions

Available at the click of a button, these instructions provide:

- Recyclability rates for Schneider Electric products.
- Guidance to mitigate personnel hazards during the dismantling of products and before recycling operations.
- Parts identification for recycling or for selective treatment, to mitigate environmental hazards/ incompatibility with standard recycling processes.

Life Is On | Schneider Electric

Schneider Electric Industries SAS

35, rue Joseph Monier
CS 30323
92506 Rueil Malmaison Cedex
France

RCS Nanterre 954 503 439
Capital social 896 313 776 €
www.schneider-electric.com

March, 2017

Document reference: LVCATRAIL_EN