



# TeSys Switching

**TeSys D, K 'S335' series**  
Contactors for electrodomestic  
applications  
Catalogue 2019



# TeSys Switching

## TeSys D, TeSys K contactors

Introduction

### TeSys D, TeSys K contactors: S335 series for electrodomeestic applications



> Schneider Electric  
Quality solutions for professionals

# TeSys Switching

## TeSys D, TeSys K contactors

### Introduction

- > Used in professional machines as electrical ovens, dishwashers, fridges, washing machines, driers, heating machines, high pressure cleaners, etc.
- > TeSys D and TeSys K S335 series contactors are designed for machine power switching and controlling applications, while complying with the electrodomestic EN60335 standards.



# TeSys Switching

## TeSys D, TeSys K contactors

### Introduction

## TeSys D, TeSys K contactors: S335 series

Schneider Electric introduces their contactor ranges for easing electro-domestic machine certification.

Made with dedicated plastic materials, **TeSys D** and **TeSys K** S335 series contactors are fully compliant with EN 60335-1 standard.

They have been successfully submitted to:

- Glow Wire Test at 850 °C,
  - Ball Pressure Test at 125 °C on all parts,
  - IRC test validation at 250 V,
- to resist to harshest electro-domestic environments.

Naturally, the standard ranges advantages are fully preserved:

- **TeSys D** longest electrical lifetime on the market,
- **TeSys K** high compactness.

# TeSys Switching

## TeSys D, TeSys K contactors

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# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

### Introduction



### TeSys D - S335 series

Made of dedicated material, fully EN 60335 compliant, with unchanged commercial reference.

#### Applications:

- AC-3, up to 95 Amps
- AC-1, up to 125 Amps
- control circuits, up to 10 Amps.

### TeSys D, the highest choice for demanding or wide power range applications

Range of 46 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, 40, 50, 65, 80, 95 A
- AC-1 ratings / 4 poles: 20, 25, 32, 40, 60, 80, 125 A
- 1 NO + 1 NC embedded auxiliary contact on all ratings (except on 60, 80, 125 A 4-pole contactors).

#### Contactors for control circuits:

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

#### Common features:

- Connection by screw clamp terminals
- 24, 230 V AC coils for contactors up to 40 A contactors
- 220, 230 V AC coils for contactors above 40 A.

> See TeSys D S335 contactor selection tables for available combinations of features.

# TeSys Switching

## TeSys K S335 - Contactors for electrodomestic applications

### Introduction

LP4K PB 11/13/7\_aps



### TeSys K - S335 series

New range of EN 60335 compliant mini contactors:

- width: 45 mm
- height: 58 mm
- depth: 57 mm
- weight: 0.235 kg.

#### Applications:

- AC-3, up to 16 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 26 contactors for motors (AC-3), resistive loads (AC-1), control circuits:

#### 3P, 4P contactors:

- AC-3 ratings / 3 poles: 6, 9, 12, 16 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 screw clamps terminal
- 24 or 230 V AC coils

> See TeSys K S335 contactor selection tables for available combinations of features.

# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

### Product references



LC1D09



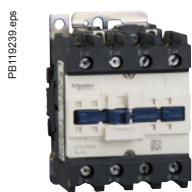
LC1D50



LC1D80



LC1DT20



LC1D4000



LC1D6500, LC1D8000

### 3-pole contactors for Motor control

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3 ( $\theta \leq 60^\circ\text{C}$ )							Rated operational current in AC-3 440 V up to	Instan- taneous auxiliary contacts	Commercial reference Replace dots by coil voltage code (see chart below)		Weight	
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V	1000 V			coil with surge suppressor <sup>(1)</sup>	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	LC1D09●●S335	-	0.320
3	5.5	5.5	5.5	7.5	7.5	-	12	1	1	LC1D12●●S335	-	0.325
4	7.5	9	9	10	10	-	18	1	1	LC1D18●●S335	-	0.330
5.5	11	11	11	15	15	-	25	1	1	LC1D25●●S335	-	0.370
7.5	15	15	15	18.5	18.5	-	32	1	1	LC1D32●●S335	-	0.375
9	18.5	18.5	18.5	18.5	18.5	-	38	1	1	LC1D38●●S335	-	0.380
11	18.5	22	22	22	30	22	40	1	1	-	LC1D40●●S335	1.400
15	22	25	30	30	33	30	50	1	1	-	LC1D50●●S335	1.400
18.5	30	37	37	37	37	37	65	1	1	-	LC1D65●●S335	1.400
22	37	45	45	55	45	45	80	1	1	-	LC1D80●●S335	1.590
25	45	45	45	55	45	45	95	1	1	-	LC1D95●●S335	1.610

### 4-pole contactors

Non inductive loads maximum current ( $\theta \leq 60^\circ\text{C}$ ) utilisation category AC-1	Number of poles	Instan- taneous auxiliary contacts	Commercial reference Replace dots by coil voltage code (see chart below)	Weight
			coil with surge suppressor <sup>(1)</sup>	Coil without surge suppressor
A				kg

### Contactors for Resistive load control

20	4	-	1	1	LC1DT20●●S335	-	0.365
25	4	-	1	1	LC1DT25●●S335	-	0.365
32	4	-	1	1	LC1DT32●●S335	-	0.425
40	4	-	1	1	LC1DT40●●S335	-	0.425
60	4	-	-	-	-	LC1D40004●●S335	1.440
	2	2	-	-	-	LC1D40008●●S335	1.440
80	4	-	-	-	-	LC1D65004●●S335	1.440
	2	2	-	-	-	LC1D65008●●S335	1.450
125	4	-	-	-	-	LC1D80004●●S335	1.440
	2	2	-	-	-	LC1D80008●●S335	1.450

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

### Coil voltage codes

AC Volts	24	42	48	110	220	230	240	380	400
50 - 60 Hz	LC1D09 to LC1D38 and LC1DT20 to LC1DT40	B7	-	-	-	P7	-	-	-
	LC1D40 to LC1D95 and LC1D4000 to LC1D8000	-	-	-	M7	P7	-	-	-



# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

### Product references



PB114194.eps

CAD32

#### Contactors for control circuit

Rated max operating current (Ie)	Composition	Commercial reference Replace dots by coil voltage code (see chart below) coil with surge suppressor

#### A

#### 5-pole contactors for control circuits

10	3	2	CAD32●●S335
	5	-	CAD50●●S335

#### Coil voltage codes

AC Volts	24	42	48	110	220	230	240	380	400
U 0.8...1.1 Uc at 50 Hz	B7	-	-	-	-	P7	-	-	-
U 0.85...1.1 Uc at 60 Hz									

# TeSys Switching

## TeSys K S335 - Contactors for electrodomestic applications

### Product references



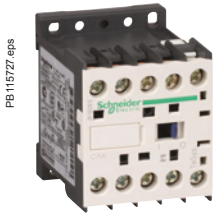
LC1K12

3-pole contactors for Motor control - connection by lugs							Weight
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)	kg
220 V	380 V	440/500 V					
230 V	415 V	660/690 V					
kW	kW	kW	A				
1.5	2.2	3	6	1	–	LC1K0610●●S335	0.235
				–	1	LC1K0601●●S335	0.235
2.2	4	4	9	1	–	LC1K0910●●S335	0.235
				–	1	LC1K0901●●S335	0.235
3	5.5	5.5 (≤ 440)	12	1	–	LC1K1210●●S335	0.235
		4 (≥ 480)		–	1	LC1K1201●●S335	0.235
4	7.5	4 (≤ 440)	16	1	–	LC1K1610●●S335	0.235
		5.5 (440)		–	1	LC1K1601●●S335	0.235



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)	A	kg
	4	–	–	LC1KT20●●S335	20	0.235
	2	2	–	LC1K098●●S335		0.235



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)	lth = 10 A		kg
	4	–	CAK40●●S335			0.235
	3	1	CAK31●●S335			0.235
	2	2	CAK22●●S335			0.235

Coil voltage codes									
AC Volts	24	42	48	110	220	230	240	380	400
U 0.8...1.15 Uc	B7	-	-	-	-	P7	-	-	-

## Technical Data for Designers

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# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

### Characteristics

3-pole contactor characteristics													
Contactor type			LC1D09	LC1D12	LC1D18	LC1D25	LC1D32	LC1D38	LC1D40	LC1D50	LC1D65	LC1D80	LC1D95
Rated operational current (Ie) (Ue ≤ 440 V)	In AC-3, θ ≤ 60 °C	<b>A</b>	9	12	18	25	32	38	40	50	65	80	95
	In AC-1, θ ≤ 60 °C	<b>A</b>	25	25	32	40	50	50	60	80	80	125	125
Rated operational voltage (Ue)	Up to	<b>V</b>	690	690	690	690	690	690	1000	1000	1000	1000	1000
Frequency limits	Of the operational current	<b>Hz</b>	25...400	25...400	25...400	25...400	25...400	25...400	25...400	25...400	25...400	25...400	25...400
Conventional thermal current (Ith)	θ ≤ 60 °C	<b>A</b>	25	25	32	40	50	50	60	80	80	125	125
Rated making capacity (440 V)	Conforming to IEC 60947	<b>A</b>	250	250	300	450	550	550	800	900	1000	1100	1100
Rated breaking capacity (440 V)	Conforming to IEC 60947	<b>A</b>	250	250	300	450	550	550	800	900	1000	1100	1100
Permissible short time rating No current flowing for preceding 15 minutes with θ ≤ 40 °C	For 1 s	<b>A</b>	210	210	240	380	430	430	720	810	900	990	1100
	For 10 s	<b>A</b>	105	105	145	240	260	310	320	400	520	640	800
	For 1 min	<b>A</b>	61	61	84	120	138	150	165	208	260	320	400
	For 10 min	<b>A</b>	30	30	40	50	60	60	72	84	110	135	135
Fuse protection against short-circuits (U ≤ 690 V)	Without type 1 thermal overload relay, gG fuse	<b>A</b>	25	40	50	63	63	63	80	100	160	200	200
	type 2	<b>A</b>	20	25	35	40	63	63	80	100	125	160	160
Average impedance per pole	At Ith and 50 Hz	<b>mΩ</b>	2.5	2.5	2.5	2	2	2	1.5	1.5	1	0.8	0.8
Power dissipation per pole for the above operational currents	AC-3	<b>W</b>	0.20	0.36	0.8	1.25	2	3	2.4	3.7	4.2	5.1	7.2
	AC-1	<b>W</b>	1.56	1.56	2.5	3.2	5	5	5.4	9.6	6.4	12.5	12.5

# TeSys Switching

## TeSys D S335 - Contactors for electrodomeestic applications

### Characteristics

4-pole contactor characteristics									
Contactor type			LC1D098 LC1DT20	LC1D128 LC1DT25	LC1D188 LC1DT32	LC1D258 LC1DT40	LC1C40004 LC1C40008	LC1C65004 LC1C65008	LC1C80004 LC1C80008
Rated operational current (Ie) (Ue ≤ 440 V)	In AC-3, θ ≤ 60 °C	<b>A</b>	9	12	18	25	40	65	80
	In AC-1, θ ≤ 60 °C	<b>A</b>	20	25	32	40	60	80	125
Rated operational voltage (Ue)	Up to	<b>V</b>	690	690	690	690	1000	1000	1000
Frequency limits	Of the operational current	<b>Hz</b>	25...400	25...400	25...400	25...400	25...400	25...400	25...400
Conventional thermal current (Ith)	θ ≤ 60 °C	<b>A</b>	20	25	32	40	60	80	125
Rated making capacity (440 V)	Conforming to IEC 60947	<b>A</b>	250	250	300	450	800	1000	1100
Rated breaking capacity (440 V)	Conforming to IEC 60947	<b>A</b>	250	250	300	450	800	1000	1100
Permissible short time rating No current flowing for preceding 15 minutes with θ ≤ 40 °C	For 1 s	<b>A</b>	210	210	240	380	720	900	990
	For 10 s	<b>A</b>	105	105	145	240	320	520	640
	For 1 min	<b>A</b>	61	61	84	120	165	260	320
	For 10 min	<b>A</b>	30	30	40	50	72	110	135
Fuse protection against short-circuits (U ≤ 690 V)	Without type 1 thermal overload relay, gG fuse	<b>A</b>	25	40	50	63	80	160	200
	type 2	<b>A</b>	20	25	35	40	80	125	160
Average impedance per pole	At Ith and 50 Hz	<b>mΩ</b>	2.5	2.5	2.5	2	1.5	1	0.8
Power dissipation per pole for the above operational currents	AC-3	<b>W</b>	0.20	0.36	0.8	1.25	2.4	4.2	5.1
	AC-1	<b>W</b>	1.56	1.56	2.5	3.2	5.4	6.4	12.5

# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

### Characteristics

Environment					
Contactor type			LC1D09...D18, LC1DT20 and LC1DT25	LC1D25...D38, LC1DT32 and LC1DT40	LC1D40..D95, LC1D40004, LC1D40008, LC1D65004, LC1D65008, LC1D80004, LC1D80008
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, EN60335		
Product certifications			IEC, CCC, EAC, UA, TR		IEC, CCC, UL
Degree of protection (front face)	Conforming to IEC 60529		Protection against direct finger contact IP20		
	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		-25...+60
Maximum operating altitude	Without derating	m	3000		
Operating positions <sup>(1)</sup>	Without derating in the following positions (other positions: please contact us).				
Flame resistance	Conforming to UL 94		V0		
	Conforming to IEC 60695-2-1	°C	850		
Shock resistance <sup>(2)</sup> 1/2 sine wave = 11 ms	Contactor open		10 gn	8 gn	8 gn
	Contactor closed		15 gn	15 gn	10 gn
Vibration resistance <sup>(2)</sup> 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) Shock does not cause change of power pole state, in the most unfavourable direction (coil energised at Ue).

# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

### Characteristics

Power circuit connections													
Connection by cable													
Contactor type			LC1D09 and LC1D12 LC1DT20 and LC1DT25	LC1 D18	LC1D25	LC1 D32	LC1 D38	LC1DT32 and LC1DT40	LC1D40 LC1D4000	LC1D50 and LC1D6500	LC1D80 and LC1D95 LC1D8000		
Tightening			Screw clamp terminals					2 input connector	Screw clamp terminals	1 input connector			
Flexible cable without cable end	1 conductor	mm <sup>2</sup>	1...4	1.5...6	1.5...10	2.5...10	2.5...10	2.5...10	2.5...25	2.5...25	4...50		
	2 conductors	mm <sup>2</sup>	1...4	1.5...6	1.5...6	2.5...10	2.5...10	2.5...10	2.5...16	2.5...16	4...25		
Flexible cable with cable end	1 conductor	mm <sup>2</sup>	1...4	1...6	1...6	1...10	2.5...10	2.5...10	2.5...25	2.5...25	4...50		
	2 conductors	mm <sup>2</sup>	1...2.5	1...4	1...4	1.5...6	2.5...10	2.5...10	2.5...10	2.5...10	4...16		
Solid cable without cable end	1 conductor	mm <sup>2</sup>	1...4	1.5...6	1.5...6	1.5...10	2.5...16	2.5...16	2.5...25	2.5...25	4...50		
	2 conductors	mm <sup>2</sup>	1...4	1.5...6	1.5...6	2.5...10	2.5...16	2.5...16	2.5...16	2.5...16	6...25		
Screwdriver	Philips		N° 2	N° 2	N° 2	N° 2	N° 2	–	–	–	–		
	Flat screwdriver Ø		Ø6	Ø6	Ø6	Ø6	Ø6	Ø6...Ø8	Ø6...Ø8	Ø6...Ø8	Ø6...Ø8		
Hexagonal key			–	–	–	–	–	–	–	–	4		
Tightening torque			N.m	1.7	1.7	2.5	2.5	1.8	5	5	9		
Control circuit connections													
Connection by cable (tightening via screw clamps)													
Flexible cable without cable end	1 conductor	mm <sup>2</sup>	1...4					1...4					
	2 conductors	mm <sup>2</sup>	1...4					1...4					
Flexible cable with cable end	1 conductor	mm <sup>2</sup>	1...4					1...2.5					
	2 conductors	mm <sup>2</sup>	1...2.5					1...2.5					
Solid cable without cable end	1 conductor	mm <sup>2</sup>	1...4					1...4					
	2 conductors	mm <sup>2</sup>	1...4					1...4					
Screwdriver	Philips		N° 2					N° 2					
	Flat screwdriver Ø		Ø6					Ø6					
Tightening torque			N.m	1.7					1.2				
Control circuit characteristics, a.c. supply TeSys D													
Contactor type			LC1D09...D38 LC1DT20...DT40					LC1D40...65 LC1D4000...D6500		LC1D80...D95 LC1D8000			
Rated control circuit voltage (Uc) 50/60 Hz			V	24, 230					220, 230				
Control voltage limits	50/60 Hz Operation coils			0.8...1.1 Uc on 50 Hz and 0.85...1.1 Uc on 60 Hz at 60 °C					0.8...1.1 Uc on 50 Hz and 0.85...1.1 Uc on 60 Hz at 55 °C				
	Drop-out			0.3...0.6 Uc at 60 °C					0.3...0.6 Uc at 55 °C				
Average consumption at 20 °C and at Uc	~ 50 Hz	Inrush	50 Hz coil	VA	–					200			
			Cos φ		0.75					0.75			
		50/60 Hz coil	VA	70					245				
			Cos φ		0.3					0.3			
		Sealed	50 Hz coil	VA	–					20			
			Cos φ		0.3					0.3			
	~ 60 Hz	Inrush	60 Hz coil	VA	–					220			
			Cos φ		0.75					0.75			
		50/60 Hz coil	VA	70					245				
			Cos φ		0.3					0.3			
		Sealed	60 Hz coil	VA	–					22			
			Cos φ		0.3					0.3			
50/60 Hz coil			VA	7.5					26				
Heat dissipation 50/60 Hz			W	2...3					6...10				
Operating time <sup>(2)</sup>	Closing "C"		ms	12...22					20...26		20...35		
	Opening "O"		ms	4...19					8...12		6...20		
Mechanical durability in millions of operating cycles				15					6		4		
Maximum operating rate at ambient temperature ≤ 60 °C			In operating cycles per hour	3600					3600		3600		

# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

### Characteristics

Characteristics of auxiliary contacts incorporated in the contactor			
Mechanically linked contacts	Conforming to IEC 60947-5-1		Each TeSys D NO/NC embedded auxiliary contacts are certified 'mechanically linked'.
Mirror contact	Conforming to IEC 60947-4-1		All TeSys D NC auxiliary contacts are 'mirror' certified and can be connected to a safety module.
Rated operational voltage (Ue)	Up to	<b>V</b>	690
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	<b>V</b>	690
Conventional thermal current (Ith)	For ambient temperature $\leq 60$ °C	<b>A</b>	10



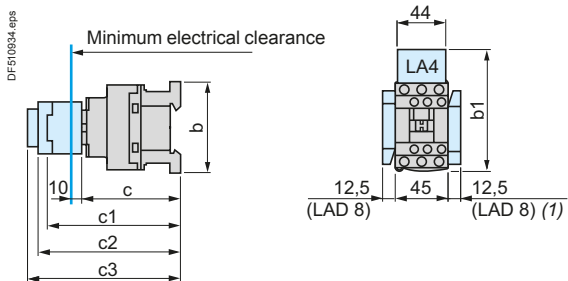
# TeSys Switching

## TeSys D S335 - Contactors for electrodomestic applications

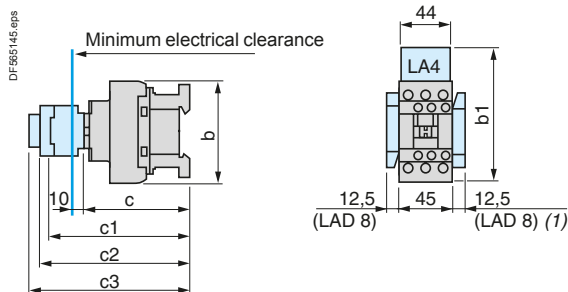
### Dimensions and schemes

#### Dimensions

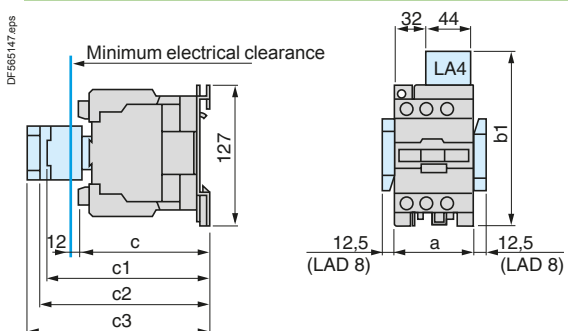
##### LC1D09...D18 (3-pole)



##### LC1D25...D38 (3-pole), LC1DT20...DT40 (4-pole)



##### LC1D40...D95 (3-pole), LC1D40004 and D40008 (4-pole), LC1D65004 and D65008 (4-pole), LC1D80004 and D80008 (4-pole)



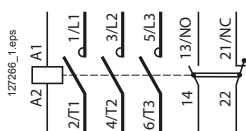
LC1	D09...D18	D25...D38	DT20 and DT25	DT32 and DT40	D40...D65	D80 D95	D40004 D65004	D40008 D65008	D80004	D80008
a	–	–	–	–	75	85	85	85	96	96
b without add-on blocks	77	85	85	91	–	–	–	–	–	–
b1 with LAD 4BB	94	98	98	–	–	135	–	–	–	–
with LA4 D●2	110 <sup>(1)</sup>	114 <sup>(1)</sup>	114	–	135	135	135	135	135	135
with LA4 DF, DT	119 <sup>(1)</sup>	123 <sup>(1)</sup>	129	–	142	142	142	142	142	142
with LA4 DW, DL	126 <sup>(1)</sup>	130 <sup>(1)</sup>	190	–	150	150	150	150	150	150
c without cover or add-on blocks	84	90	90	97	114	125	114	125	125	140
with cover, without add-on blocks	86	92	92	99	119	130	–	–	–	–
c1 with LAD N or C (2 or 4 contacts)	117	123	123	131	147	158	147	147	158	158
c2 with LA6 DK10, LAD 6K10	129	135	135	143	159	170	159	159	170	170
c3 with LAD T, R, S	137	143	143	151	167	178	167	167	178	178
with LAD T, R, S and sealing cover	141	147	147	155	171	182	171	171	182	182

(1) Including LAD 4BB.

#### Schemes

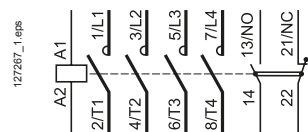
##### 3-pole contactors

##### LC1D09 ... LC1D95

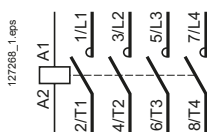


##### 4-pole contactors

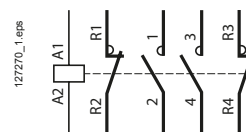
##### LC1DT20... DT40



##### LC1D40004, LC1D65004, LC1D80004



##### LC1D40008, LC1D65008, LC1D80008



# TeSys Switching

## TeSys K S335 - Contactors for electrodomestic applications

### Characteristics

Environment characteristics						
Conforming to standards		IEC 60947, NF C 63-110, VDE 0660, BS 5424				
Product certifications	LC● and LP● K06 to K12	UL, CSA				
Operating positions						
Connection	Screw clamp terminals	Solid conductor	<b>mm<sup>2</sup></b>	<b>Min.</b>	<b>Max.</b>	<b>Max. to IEC 60947</b>
		Flexible conductor without cable end	<b>mm<sup>2</sup></b>	1 x 1.5	2 x 4	1 x 4 + 1 x 2.5
		Flexible conductor with cable end	<b>mm<sup>2</sup></b>	1 x 0.75	2 x 4	2 x 2.5
	Solder pins for printed circuit board		<b>mm<sup>2</sup></b>	1 x 0.34	1 x 1.5 + 1 x 2.5	1 x 1.5 + 1 x 2.5
Tightening torque	of screw-clamp terminals only Philips head n° 2 and Ø6	<b>N.m</b>	0.8			
Terminal referencing	Conforming to standards EN 50005 and EN 50012		Up to 5 contacts, depending on model			
Rated insulation voltage (Ui)	Conforming to IEC 60947	<b>V</b>	690			
	Conforming to VDE 0110 gr C	<b>V</b>	750			
	Conforming to BS 5424, NF C 20-040	<b>V</b>	690			
	Conforming to CSA 22-2 n° 14, UL 508	<b>V</b>	600			
Rated impulse withstand voltage (Uimp)		<b>kV</b>	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	<b>°C</b>	-50...+80			
	Operation	<b>°C</b>	-25...+50			
Maximum operating altitude	Without derating	<b>m</b>	2000			
Vibration resistance 5 ... 300 Hz	Contacteur open		2 gn			
	Contacteur closed		4 gn			
Flame resistance	Conforming to UL 94		Self-extinguishing materials V1			
	Conforming to NF F 16-101 and 16-102		Conforming to requirement 2			
Shock resistance (1/2 sine wave, 11 ms)	Contacteur open		On X axis: 6 gn On Y and Z axes: 10 gn			
	Contacteur closed		On X axis: 10 gn On Y and Z axes: 15 gn			
Separation of circuits	Conforming to VDE 0106 and IEC 60536		Up to 400 V			

# TeSys Switching

## TeSys K S335 - Contactors for electrodomestic applications

### Characteristics

Pole characteristics								
Type	LC		K06	K09	K12	K16		
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	160		
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	110	
		500 V	A	80	80	80	80	
		660/690 V	A	70	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	115	
		5 s	A	85	85	105	105	
		10 s	A	80	80	100	100	
		30 s	A	60	60	75	75	
		1 min	A	45	45	55	55	
		3 min	A	40	40	50	50	
		≥ 15 min	A	20	20	25	25	
Short-circuit protection	gG fuse U ≤ 440 V (aM fuse, see page 22009/2)	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					
		A	16 for Ue only					
	Rated operational current limits in relation to the on-load factor and operating frequency	On-load factor			90 %	60 %	30 %	
		A	300 operating cycles/hour		13	15	18	
		A	120 operating cycles/hour		15	18	19	
	A	30 operating cycles/hour		19	20	20		
	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								
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	4	
		380/415 V 3-ph.	kW	2.2	4	5.5	7.5	
		440/480 V 3-ph.	kW	3	4	5.5/4 (480)	5.5/4 (480)	
		500/600 V 3-ph.	kW	3	4	4	4	
		660/690 V 3-ph.	kW	3	4	4	4	
		Maximum operating rate (in operating cycles/hour in relation to % of rated power)			Op. cycles/h	600	900	1200
				Power	100 %	75 %	50 %	

# TeSys Switching

## TeSys K S335 - Contactors for electrodomestic applications

### Characteristics

Control circuit characteristics			
Rated control circuit voltage (Uc)		<b>V AC</b>	24 or 230
Control voltage limits ( $\leq 50$ °C) single voltage coil	Operation		0.8...1.15 Uc <sup>(1)</sup>
	Drop-out		$\geq 0.20$ Uc
Average consumption at 20 °C and at Uc	Inrush	<b>VA</b>	30
	Sealed	<b>VA</b>	4.5
Heat dissipation		<b>W</b>	1.3
Operating time at 20 °C and at Uc			
Between coil energisation and:	opening of the N/C contacts	<b>ms</b>	5...15
	closing of the N/O contacts	<b>ms</b>	10...20
Between coil de-energisation and:	opening of the N/O contacts	<b>ms</b>	10...20
	closing of the N/C contacts	<b>ms</b>	15...25
Maximum immunity to microbreaks		<b>ms</b>	2
Maximum operating rate	In operating cycles per hour		3600
Mechanical durability at Uc	50/60 Hz coil		10
In millions of operating cycles			

<sup>(1)</sup> LC1K12, LC1K16... : 0.85...1.15 Uc.

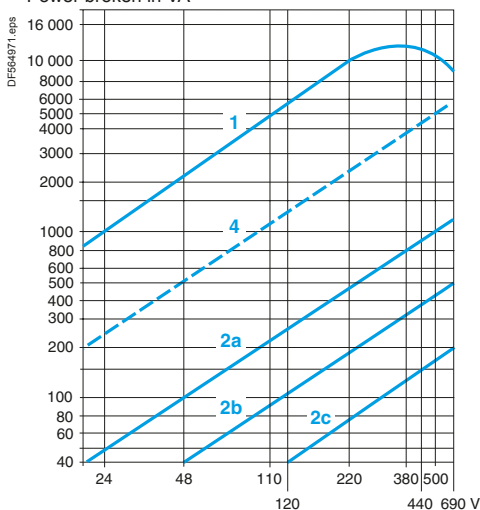
# TeSys Switching

## TeSys K S335 - Contactors for electrodomestic applications

### Characteristics

Auxiliary contacts characteristics of contactors				
Number of auxiliary contacts	On LC●K		1	
Rated operational voltage (U <sub>e</sub> )	Up to	V	690	
Rated insulation voltage (U <sub>i</sub> )	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 (I <sub>th</sub> )	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	
Short-time rating	Permissible for	1 s	A	80
		500 ms	A	90
		100 ms	A	110
Insulation resistance		MΩ	> 10	
Non-overlap distance		mm	0.5	

Power broken in VA



### 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 ( $\cos \varphi 0.7$ ) = 10 times the power broken ( $\cos \varphi 0.4$ ).

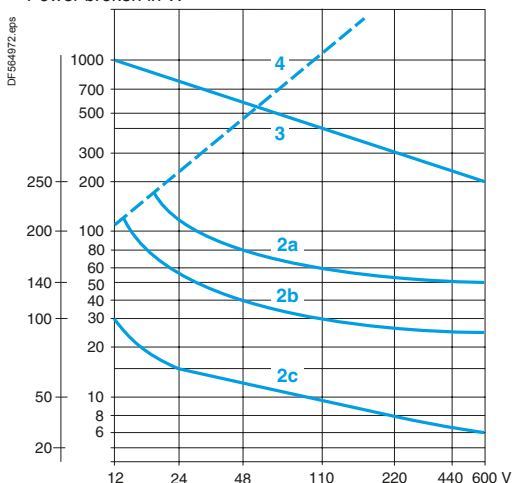
Operating cycles	V	110/		220/		380/		600/	
		24	48	127	230	400	440	690	
1 million operating cycles	VA	48	96	240	440	800	880	1200	
3 million operating cycles	VA	17	34	86	158	288	317	500	
10 million operating cycles	VA	7	14	36	66	120	132	200	
Occasional making capacity	VA	1000	2050	5000	10000	14000	13000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

Power broken in W



- Breaking limit of contacts valid for:
  - maximum of 50 operating cycles at 10 s intervals (power broken = making current x  $\cos \varphi 0.7$ ).
- Electrical durability of contacts for:
  - 1 million operating cycles (2a)
  - 3 million operating cycles (2b)
  - 10 million operating cycles (2c).
- 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.
- Thermal limit.

# TeSys Switching

## TeSys K S335 - Contactors for electrodomestic applications

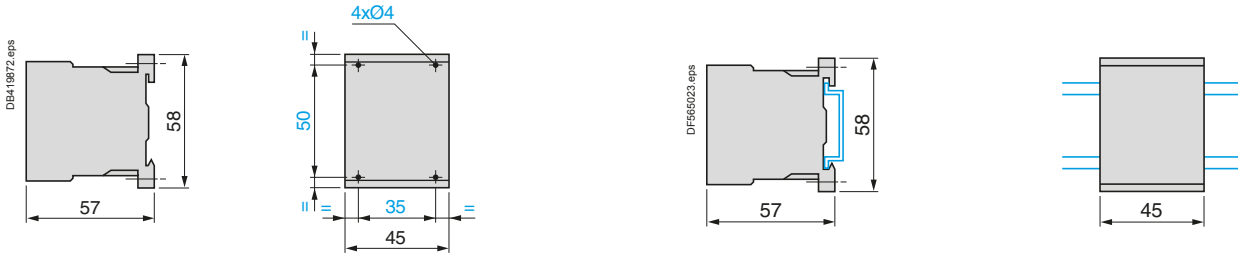
### Dimensions and schemes

#### Contactors

##### LC1K, LC1KT, CAK

On panel

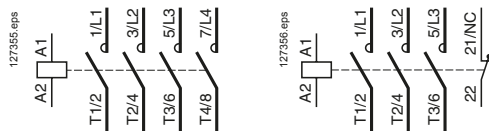
On mounting rail AM1 DP200 or AM1 DE200 (735 mm)



#### 3-pole contactors

3 P + N/O

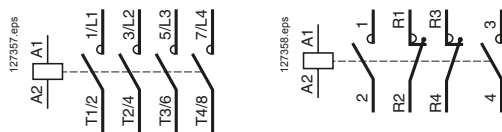
3 P + N/C



#### 4-pole contactors

4 P

2 P N/O + 2 P N/C

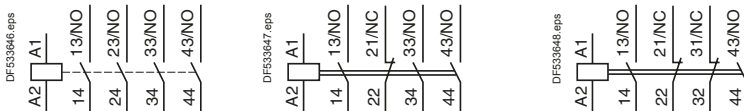


#### CAK - 4 poles contactors for control circuits

4 N/O

3 N/O + 1 N/C

2 N/O + 2 N/C





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