

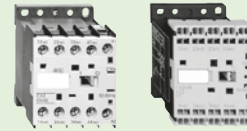
Relays – TeSys SK, K - For control of TeSys K contactor coils and other devices**Type of product****Pages**

Mini relay - 2 contacts, simultaneous action
TeSys SK, SKE



B7/2

Relays - 4 contacts, simultaneous action
TeSys K



B7/4

Auxiliary contact blocks, accessories



B7/6

Relays – TeSys D - For control of TeSys D contactor coils and other devices

Relays and auxiliary contact blocks
5 contacts, simultaneous action
TeSys D



B7/8

Accessories



B7/10

Control
relays

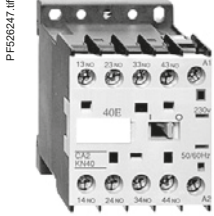
Technical Data for Designers

B7/13

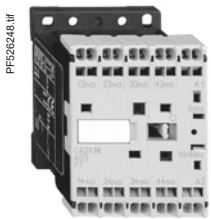
Control relays

TeSys K control relays

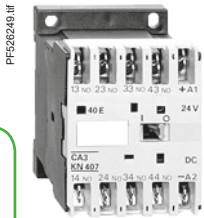
For a.c. or d.c. control circuit



CA2 KN40●●



CA2 KN403●●



CA3 KN407●●

Control relays

Control relays for a.c. control circuit

- Mounting on 35 mm rail or Ø4 screw fixing.
- Screws in the open "ready-to-tighten" position.

Control circuit Consumption	Auxiliary contacts	Basic reference, to be completed by adding the voltage code ⁽¹⁾

Screw clamp connections

4.5 VA	4	–	CA2KN40●●
	3	1	CA2KN31●●
	2	2	CA2KN22●●

Spring terminal connections

4.5 VA	4	–	CA2KN403●●
	3	1	CA2KN313●●
	2	2	CA2KN223●●

Faston connectors, 1 x 6.35 or 2 x 2.8

4.5 VA	4	–	CA2KN407●●
	3	1	CA2KN317●●
	2	2	CA2KN227●●

Solder pins for printed circuit boards

4.5 VA	4	–	CA2KN405●●
	3	1	CA2KN315●●
	2	2	CA2KN225●●

Control relays for d.c. control circuit

- Mounting on 35 mm rail or Ø4 screw fixing.
- Screws in the open "ready-to-tighten" position.

Screw clamp connections

3 W	4	–	CA3KN40●●
	3	1	CA3KN31●●
	2	2	CA3KN22●●

Spring terminal connections

3 W	4	–	CA3KN403●●
	3	1	CA3KN313●●
	2	2	CA3KN223●●

Faston connectors, 1 x 6.35 or 2 x 2.8

3 W	4	–	CA3KN407●●
	3	1	CA3KN317●●
	2	2	CA3KN227●●

Solder pins for printed circuit boards

3 W	4	–	CA3KN405●●
	3	1	CA3KN315●●
	2	2	CA3KN225●●

(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

Control relays CA2 K (0.8...1.15 Uc) (0.85...1.1 Uc)

Volts ~	12	20	24 ⁽²⁾	36	42	48	110	115	127	220/230	230/240	380/400	400/415	440	500	660/690		
Code	J7	Z7	B7	C7	D7	E7	F7	FE7	FC7	M7	P7	U7	Q7	V7	N7	R7	S7	Y7

Up to and including 240 V, coil with integral suppression device available: add 2 to the code required. Example: J72

Control relays CA3 K (0.8...1.15 Uc)

Volts ∴	12	20	24 ⁽²⁾	36	48	60	72	100	110	125	200	220	230	240	250
Code	JD	ZD	BD	CD	ED	ND	SD	KD	FD	GD	LD	MD	MPD	MUD	UD

Coil with integral suppression device available: add 3 to the code required. Example: JD3.

(2) When connecting an electronic sensor or timer in series with the coil of the control relay, select a 20 V coil (~ code Z7, ∴ code ZD) so as to compensate for the incurred voltage drop.

Control relays

TeSys K control relays

For d.c. control circuit



CA4 KN40●●●●

Low consumption control relays (d.c. control circuit)

- Mounting on 35 mm rail or Ø4 screw fixing.
- Screws in the open "ready-to-tighten" position.

Control circuit Consumption	Auxiliary contacts	Basic reference, to be completed by adding the voltage code ⁽¹⁾

Screw clamp connections

1.8 W	4	–	CA4KN40●●
	3	1	CA4KN31●●
	2	2	CA4KN22●●

Spring terminal connections

1.8 W	4	–	CA4KN403●●
	3	1	CA4KN313●●
	2	2	CA4KN223●●

Faston connectors, 1 x 6.35 or 2 x 2.8

1.8 W	4	–	CA4KN407●●
	3	1	CA4KN317●●
	2	2	CA4KN227●●

Solder pins for printed circuit boards

1.8 W	4	–	CA4KN405●●
	3	1	CA4KN315●●
	2	2	CA4KN225●●

⁽¹⁾ Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

Control relays CA4 K (Wide range coil: 0.7...1.3 U_c)

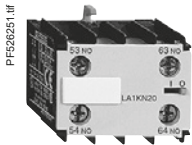
Volts ~	12	20	24	48	72	110	120
Code	JW3	ZW3	BW3	EW3	SW3	FW3	GW3

Coil with integral suppression device fitted as standard, by bi-directional peak limiting diode.

Control relays

TeSys K control relays

Instantaneous and time delay auxiliary contact blocks



LA1 KN20



LA1 K...

Instantaneous auxiliary contact blocks

Clip-on front mounting, 1 per control relay

Connection	Composition		Reference	
Screw clamp terminals		2 -	LA1KN20	
		- 2	LA1KN02	
	1 1	LA1KN11		
	4 -	LA1KN40 ⁽¹⁾		
	3 1	LA1KN31 ⁽¹⁾		
	2 2	LA1KN22 ⁽¹⁾		
	1 3	LA1KN13 ⁽¹⁾		
	- 4	LA1KN04 ⁽¹⁾		
	Spring terminals		2 -	LA1KN203
			- 2	LA1KN023
1 1		LA1KN113		
4 -		LA1KN403 ⁽¹⁾		
3 1		LA1KN313 ⁽¹⁾		
2 2		LA1KN223 ⁽¹⁾		
1 3		LA1KN133 ⁽¹⁾		
- 4		LA1KN043 ⁽¹⁾		
Faston connectors 1 x 6.35 or 2 x 2.8			2 -	LA1KN207
			- 2	LA1KN027
	1 1	LA1KN117		
	4 -	LA1KN407 ⁽¹⁾		
	3 1	LA1KN317 ⁽¹⁾		
	2 2	LA1KN227 ⁽¹⁾		
	1 3	LA1KN137 ⁽¹⁾		
	- 4	LA1KN047 ⁽¹⁾		

Electronic time delay contact blocks

- Relay output with common point changeover contact, ~ or 240 V, 2 A maximum
- Control voltage 0.85... 1.1 Uc
- Maximum switching capacity 250 VA or 150 W
- Operating temperature -10...+ 60 °C
- Reset time: 1.5 s during the time delay period 0.5 s after the time delay period

Clip-on front mounting, 1 per control relay

Voltage	Type	Timing range	Composition	Reference	
V		s			
~ or 24...48	On-delay	1...30		1	LA2KT2E
~ 110...240	On-delay	1...30		1	LA2KT2U

Other versions Electronic timers type RE4.
Please consult your Regional Sales Office.

⁽¹⁾ Block of 4 contacts for use on CA2 K and CA3 K.

Control relays

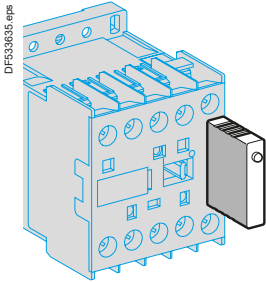


LA2 KT2

Control relays

TeSys K control relays

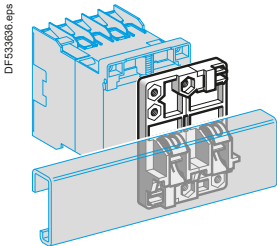
Mounting and marking accessories



LA4 K●●●

Suppressor modules incorporating LED indicator

Mounting and connection	Type	For voltages	Sold in lots of	Unit reference
Clips onto front of relay with locating device. No tools required.	Varistor ⁽¹⁾	~ and --- 12...24 V	5	LA4KE1B
		~ and --- 32...48 V	5	LA4KE1E
		~ and --- 50...129 V	5	LA4KE1FC
		~ and --- 130...250 V	5	LA4KE1UG
	Diode + Zener diode ⁽²⁾	--- 12...24 V	5	LA4KC1B
		--- 32...48 V	5	LA4KC1E
	RC ⁽³⁾	~ 220...250 V	5	LA4KA1U



LA9 D973

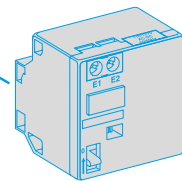
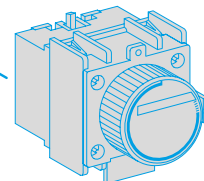
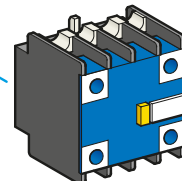
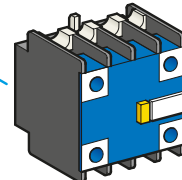
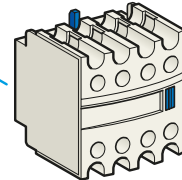
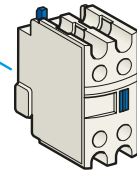
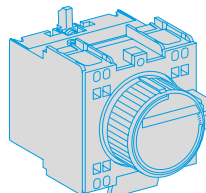
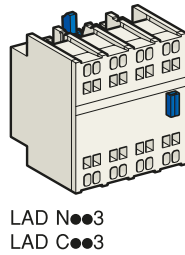
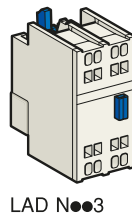
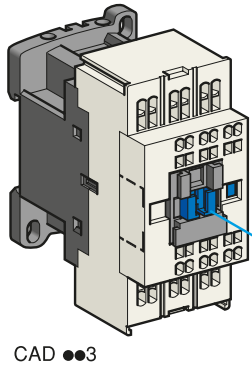
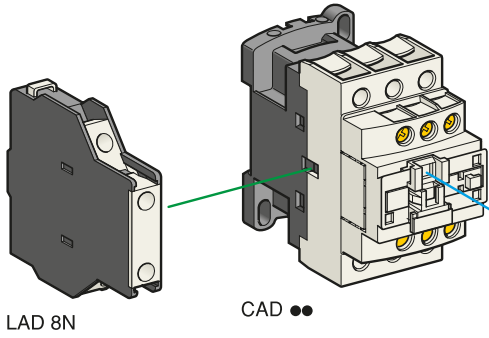
Mounting accessories

Description	Application		Sold in lots of	Unit reference
Mounting plates	On 1 □ rail	Clip-on	1	LA9D973
	On 2 □ rails	110/120 mm fixing centres	10	DX1AP25

Marking accessories

Description	Application		Sold in lots of	Unit reference
Marker holder	Clip-on fixing on front face	–	100	LA9D90
Clip-in markers	4 maximum per relay	Strips of 10 identical numbers 0 to 9	25	AB1R● ⁽⁴⁾
		Strips of 10 identical capital letters A to Z	25	AB1G● ⁽⁴⁾

- (1) Protection provided by limiting the transient voltage to 2 Uc max. Maximum reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times the normal time).
- (2) No overvoltage or oscillating frequency. Polarised component. Slight increase in drop-out time (1.1 to 1.5 times the normal time).
- (3) Protection by limiting the transient voltage to 3 Uc max. and limitation of the oscillating frequency. Slight increase in drop-out time (1.2 to 2 times the normal time).
- (4) Complete the reference by replacing the dot with the required character.

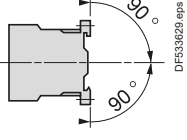
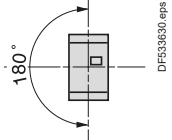
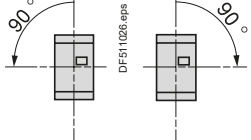


Control relays

See page opposite for mounting possibilities according to control relay type and rating

Control relays

TeSys K control relays

Environment					
Conforming to standards		IEC/EN 60947-5-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1, GB/T 14048.5			
Product certifications		UL, CSA, CCC, EAC, CB certification			
Operating positions		<p>Vertical axis</p>  <p>Without derating</p>	<p>Horizontal axis</p>  <p>Without derating</p>	 <p>Possible positions for CA2 K only, with derating, please consult your Regional Sales Office.</p>	
Connection			Min.	Max.	Max. to IEC 60947
Screw clamp connections	Solid cable	mm ²	1 x 1.5	2 x 4	1 x 4 + 1 x 2.5
	Flexible cable without cable end	mm ²	1 x 0.75	2 x 4	2 x 2.5
	Flexible cable with cable end	mm ²	1 x 0.34	1 x 1.5 + 1 x 2.5	1 x 1.5 + 1 x 2.5
Spring terminals	Solid cable	mm ²	1 x 0.75	1 x 1.5	2 x 1.5
	Flexible cable without cable end	mm ²	1 x 0.75	1 x 1.5	2 x 1.5
Faston connectors	Clip	mm	2 x 2.8 or 1 x 6.35		
Solder pins for printed circuit board	With locating device between power and control circuits		4 mm x 35 microns		
Tightening torque	Philips head n° 2 and Ø6	N.m	0.8		
Terminal referencing	Conforming to standards EN 50005 and EN 50011		Up to 8 contacts		
Degree of protection	Conforming to IEC 60529		Protection against direct finger contact IP2x (devices with screw clamp terminals or pins for printed circuit board)		
Ambient air temperature around the device	Storage	°C	-50...+80		
	Operation	°C	-25...+50		
Maximum operating altitude	Without derating	m	2000		
Vibration resistance 5...300 Hz	Control relay open		2 gn		
	Control relay closed		4 gn		
Flame resistance	Conforming to IEC 60695-2-11		850 °C		
Shock resistance (1/2 sine wave, 11 ms)	Control relay open		10 gn		
	Control relay closed		15 gn		
Control circuit characteristics					
Control relay type			CA2 K	CA3 K	CA4 K
Rated control circuit voltage (Uc)		V	~ 12...690	~ 12...250	~ 12...120
Control voltage limits (γ 50 °C) single voltage coil	For operation		0.8...1.15 Uc	0.8...1.15 Uc	0.7...1.3 Uc
	For drop-out		≤ 0.2 Uc	≤ 0.1 Uc	≤ 0.1 Uc
Mechanical durability at Uc In millions of operating cycles	50/60 Hz coil		10	–	–
	Standard ~ coil		–	20	–
	Wide range, low consumption ~ coil		–	–	30
Maximum operating rate	In operating cycles per hour		10 000	10 000	6000
Average consumption at 20 °C and at Uc	Inrush		30 VA	3 W	1.8 W
	Sealed		4.5 VA	3 W	1.8 W
Heat dissipation		W	1.3	3	1.8
Operating time at 20 °C and at Uc	Between coil energisation and opening of the N/C contacts	ms	5...15	25...35	25...35
		ms	10...20	30...40	30...40
	Between coil de-energisation and opening of the N/O contacts	ms	10...20	10	10...20
		ms	15...25	15	15...25
Maximum immunity to microbreaks		ms	2	2	2

Control relays

Control relays

TeSys K control relays

Contact characteristics of control relays and instantaneous contact blocks

Number of auxiliary contacts	On CA● K On LA1 K		4 2 or 4 for CA2 K and CA3 K , 2 for CA4 K
Rated operational voltage (Ue)	Up to	V	690
Rated insulation voltage (Ui)	Conforming to IEC 60947	V	690
	Conforming to UL 60947-5-1, CSA C22.2 n° 60947-5-1	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	V	17
	I min	mA	5
Short-circuit protection	Conforming to IEC 60947, 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
Insulation resistance		MΩ	> 10
Non-overlap distance	CA● K and LA1 K: linked contacts conforming to INRS, BIA and CNA specifications	mm	0.5 (see schemes page B7/21)

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)

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.

	V	24	48	110/127	220/230	380/400	440	600/690	V	24	48	110	220	440	600
1 million operating cycles	VA	48	96	240	440	800	880	1200	W	120	80	60	52	51	50
3 million operating cycles	VA	17	34	86	158	288	317	500	W	55	38	30	28	26	25
10 million operating cycles	VA	7	14	36	66	120	132	200	W	15	11	9	8	7	6
Occasional making capacity	VA	1000	2050	5000	10000	14000	13000	9000	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).

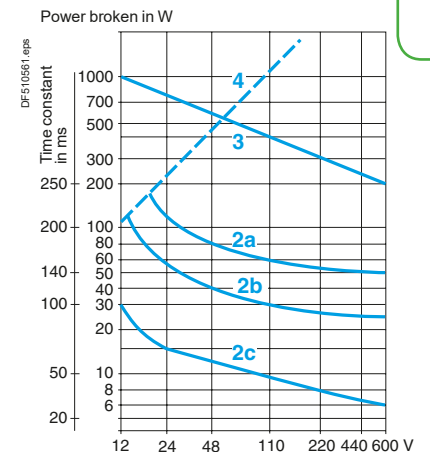
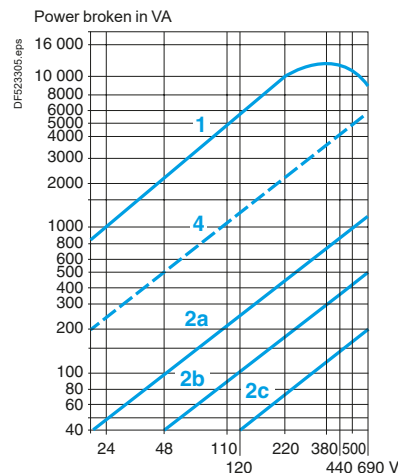
2 Electrical durability of contacts for:

- 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



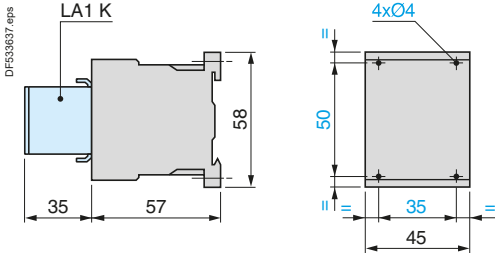
Control relays

TeSys K control relays

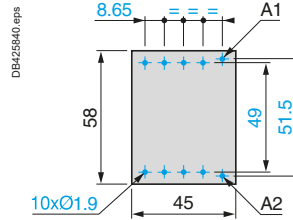
Control relays

CA2 K, CA3 K, CA4 K

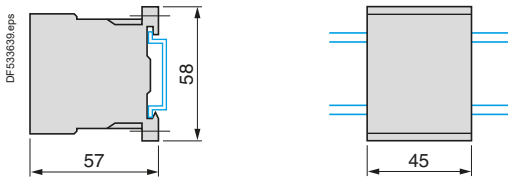
On panel



On printed circuit board

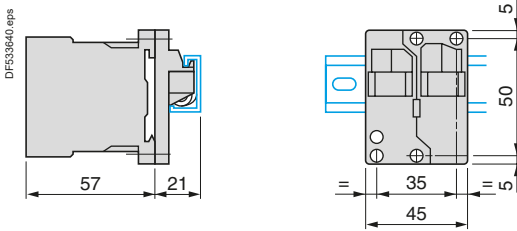


On mounting rail AM1 DP200 or AM1 DE200 (L 35 mm)



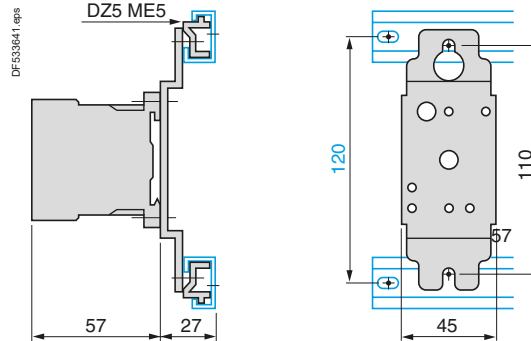
LA9 D973

On asymmetrical rail with clip-on mounting plates



DX1 AP25

On asymmetrical rail with clip-on mounting plates



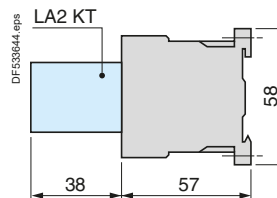
Control relays

Electronic time delay contact blocks

LA2 KT

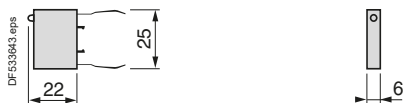


On control relay

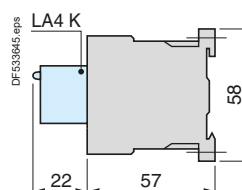


Suppressor modules

LA4 K



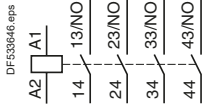
On control relay



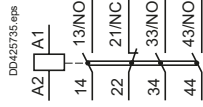
Control relays

CA2 K, CA3 K, CA4 K

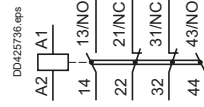
4 N/O



3 N/O + 1 N/C

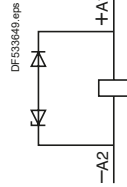


2 N/O + 2 N/C

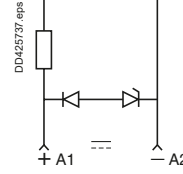


With integral suppression device

CA3 K



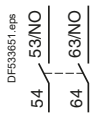
CA4 K



Instantaneous auxiliary contact blocks LA1 K

For CA2 K, CA3 K, CA4 K

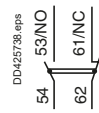
2 N/O



2 N/C

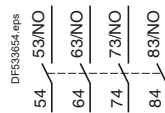


1 N/O + 1 N/C

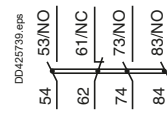


For CA2 K, CA3 K

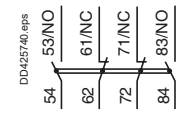
4 N/O



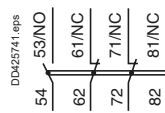
3 N/O + 1 N/C



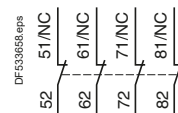
2 N/O + 2 N/C



1 N/O + 3 N/C



4 N/C

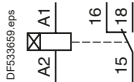


Electronic time delay contact blocks LA2 KT

For CA2 K, CA3 K, CA4 K

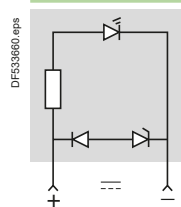
1 C/O

LA2 KT2

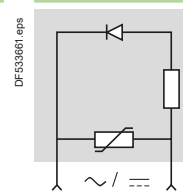


Suppressor modules

LA4 KC



LA4 KE



Contactors – TeSys D – TeSys D Green		
Type of product	Range	Pages
AC-3 applications - 3-pole, 4-pole contactors	From 9 to 150 A	B8/2
AC-1 applications - 3-pole, 4-pole contactors	From 25 to 200 A	B8/3
UL CSA standards - 3-pole contactors	From 25 to 200 A	B8/8
AC/DC compatible coil contactors - TeSys D Green AC-3, AC-1, UL CSA	From 9 to 80 A	B8/9
Reversing, changeover pre-assembled contactors	From 9 to 150 A	B8/16
AC/DC compatible coil, reversing contactors - TeSys D Green	From 9 to 80 A	B8/18
Contactors for capacitor banks switching	From 12.5 to 60 kVAR	B8/21
Auxiliary contact blocks – accessories – spare coils for TeSys D, TeSys D Green		B8/23

Mini contactors – TeSys SK, K		
Mini contactors TeSys SK	Up to 6 A	B8/38
Mini contactors TeSys K	From 6 to 16 A	B8/40
Reversing pre-assembled mini contactors TeSys K	From 6 to 16 A	B8/44
Auxiliary contact blocks - accessories		B8/49

Contactors for use in modular enclosures / Din rail		
Mini contactors TeSys SKGC	Up to 20 A	B8/52
Modular contactors TeSys GC	From 16 to 100 A	B8/54
Dual tariff contactors TeSys GY	16, 25, 40 or 100 A	B8/55
Impulse relay TeSys GF	Up to 16 A	B8/56
Auxiliary contact blocks - accessories TeSys GC, GY		B8/57

Technical Data for Designers	B8/59
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Contactors