Contactors
Contactors type LC1 B

Environment

Contactor type			LC1 BL	LC1 BM	LC1 BP	LC1 BR
Rated insulation voltage (Ui)	Conforming to IEC 60158-1/IEC 60947-4	**V**	1000	1000	1000	1000
	Conforming to VDE 0110 gr C	**V**	1500	1500	1500	1500
Conforming to standards			IEC 60158-1, IEC60947-4, NF C 63-110,VDE 0660, BS 5424			
Product certifications			CSA, BV, RINA			
Protective treatment	Standard version		"TC"			
	Special version		"TH"			
Ambient air temperature around the device (for operation at Uc)	Storage	**°C**	- 60…+ 80			
	Operation	**°C**	- 5…+ 55			
	Permissible	**°C**	- 50…+ 60			
Maximum operating altitude	Without derating	**m**	3000			
Operating positions	Without derating		± 30° occasional, in relation to normal vertical mounting plane			

Pole characteristics

Number of poles			1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4	1, 2, 3 or 4
Rated operational current (Ie) (Ue ⩽ 440 V)	In AC-3, θ ⩽ 55 °C	**A**	750	1000	1500	1800
	In AC-1, θ ⩽ 40 °C	**A**	800	1250	2000	2750
Rated operational voltage (Ue)	Up to	**V**	1000			
Frequency limits (sine wave)	Without derating	**Hz**	50/60			
	Derating coefficient		100 Hz: 0.9 - 150 Hz: 0.8 - 250 Hz: 0.7 - 400 Hz: 0.5			
Maximum thermal current (Ith)	θ ⩽ 40 °C	**A**	800	1250	2000	2750
Rated making capacity	I rms conforming to IEC 60158-1 and 60947-4	**A**	10 000	10 000	15 000	18 000
Rated breaking capacity	I rms conforming to IEC 60158-1 and 60947-4 — up to 440 V	**A**	10 000	10 000	15 000	18 000
	500 V	**A**	9000	9000	12 000	15 000
	660-690 V	**A**	8000	8000	9000	11 000
	1000 V	**A**	4000	4000	5000	6000
Permissible short time rating From cold state, with no current flowing for previous 60 minutes at θ ⩽ 40 °C	For 1 s	**A**	9600	9600	12 000	15 000
	For 5 s	**A**	9600	9600	12 000	15 000
	For 10 s	**A**	7000	8000	9600	12 000
	For 30 s	**A**	4800	5200	6400	8000
	For 1 min.	**A**	3500	3800	5200	6300
	For 3 min.	**A**	2100	2400	3600	4400
	For 10 min.	**A**	1200	1800	2800	3600
Short-circuit protection by fuses U ⩽ 440 V	Motor circuit (type aM)	**A**	800	1200	2 x 800 *(1)*	2 x 1000 *(1)*
	With thermal overload relay (type gl)	**A**	1000	1500	2 x 1000 *(1)*	2 x 1200 *(1)*
	gl fuses	**A**	800	1200	2 x 1000 *(1)*	2 x 1200 *(1)*
Average impedance per pole	At Ith and 50 Hz	**mΩ**	0.18	0.18	0.13	0.09
Power dissipated per pole	AC-3	**W**	88	180	290	360
	AC-1	**W**	115	280	520	680
Connection	Number of bars		2	2	3	4
	Bar	**mm**	50 x 5	80 x 5	100 x5	100 x 5
Bolt diameter		**mm**	4 x Ø 8	4 x Ø 10	4 x Ø 10	4 x Ø 10
Tightening torque	Power circuit connections	**N.m**	21	35	35	35

(1) Fuses must not be connected in parallel unless specified by the manufacturer.

Selection : pages 24565/2 to 24564/3
References : pages 26101/2 to 26102/2
Dimensions and schemes : pages 26103/2 and 26103/3

Contactors

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Control circuit characteristics

Contactor type				LC1 BL	LC1 BM	LC1 BP	LC1 BR
Rated control voltage	50/60 Hz		**V**	110…500	110…500	110…500	110…500
	⎓ 1,2 or 3-pole contactors		**V**	48…500	48…500	48…500	48…500
	⎓ 4-pole contactors		**V**	48…500	48…500	48…500	60…500
Voltage limits	Operation		**V**	0.85…1.1 Uc	0.85…1.1 Uc	0.85…1.1 Uc	0.85…1.1 Ucw
	Drop-out		**V**	0.30…0.50 Uc	0.30…0.50 Uc	0.35…0.50 Uc	0.40…0.50 Uc
Maximum consumption (coil + economy resistor)	∼	Number of poles: 1	**VA**	Inrush: 620 - sealed: 10			
		Number of poles: 2	**VA**	Inrush: 1000 - sealed: 20			
		Number of poles: 3	**VA**	Inrush: 1300 - sealed: 31			
		Number of poles: 4	**VA**	Inrush: 1600 - sealed: 47			
	⎓ *(1)*	Number of poles: 1	**W**	Inrush: 520 - sealed: 10			
		Number of poles: 2	**W**	Inrush: 800 - sealed: 20			
		Number of poles: 3	**W**	Inrush: 1100 - sealed: 31			
		Number of poles: 4	**W**	Inrush: 1400 - sealed: 47			
Operating time *(2)* average at Uc (in milliseconds)	"C"		**ms**	100…150	100…150	100…150	100…150
	"O" breaking on ∼ side		**ms**	50…100	50…100	50…100	50…100
	"O" breaking on ⎓ side		**ms**	20…40	20…40	20…40	20…40
				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.*			
Mechanical durability (at Uc)	In millions of operating cycles			1.2	1.2	1.2	1.2
Maximum operating rate in mechanical operating cycles	Ambient temperature ⩽ 55 °C		**Op. cycs/h**	120	120	120	120

Characteristics of instantaneous auxiliary contacts ZC4 GM●

Rated thermal current			**A**	20							
Rated insulation voltage	Conforming to IEC 60947-1		**V**	660							
	Conforming to VDE, group C		**V**	750							
Short-circuit protection gl type cartridge fuses	Conforming to IEC 60947-1 and VDE 0660		**A**	20							
Operational power				∼ supply					⎓ supply		
			V	110/127	220	380	415/440	500	110	220	440	500
	1 million operating cycles		**VA/W**	2000	4000	4000	4000	3500	250	250	230	200
Making and breaking capacity			**VA/W**	14 000	23 000	35 000	45 000	35 000	1600	800	400	360
Cabling	With cable end		**mm²**	1 or 2 x 4 mm² conductors							
	Without cable end		**mm²**	1 or 2 x 6 mm² conductors							

(1) The inrush and sealed power values of d.c. electromagnets often require the use of an intermediate relay for control.

(2) 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.

Selection : pages 24565/2 to 24564/3
References : pages 26101/2 to 26102/2
Dimensions and schemes : pages 26103/2 and 26103/3