

TECHNICAL DATA

	GENERAL		MAIN CIRCUIT		
	Type	Symbol	Unit	KNL43 KNL43UL	KNL63 KNL63UL
Standards			IEC/EN 60947-5-1, IEC 60947-4-1, IEC/EN 60947-1, UL 508		
Approvals			CE, EAC (UL & CSA only for KNL43UL and KNL63UL)		CE, EAC
Module width		mm	65		
Number of poles			3		
Degree of protection			IP20		
Pollution degree			3		
Climatic conditions			95 % relative humidity		
Ambient temperature:					
open		°C	-20 ... +60		
closed		°C	-20 ... +45		
Storage temperature		°C	-30 ... +80		
Maximum altitude		m	2000		
U _i and U _e is reduced for 1.2 % and I _e for 0.4 % for every additional 100 m					
Number of contactors or switches side-by-side:					
≤40 °C			no limitation		
(40 ... 55) °C					
Noise level (operation)		dB	30		
Maximum operating frequency with no load		op. c./h	3.000		
Mechanical endurance		op. c.	3.000.000		
Weight		g	930		
Contact reliability			≥17 V; ≥50 mA		
Power dissipation per pole		W	5	6	6
Overload current withstand capability					
10 s		A	344	504	528
Maximum back-up fuse for short-circuit protection gL and gG: coordination type 2		A	80 (125 ¹⁾)	125	125
Rated insulation voltage	U _i	V	1000		
Rated impulse withstand voltage	U _{imp}	kV	6		
Rated operational voltage	U _e	V	1000		
Rated frequency	f	Hz	50/60		
Thermal current	I _{th}	A	75 (85 ¹⁾)	85 (100 ²⁾)	100
Rated operational current for AC-1, AC-7a and AC-21	I _e	A	75 (85 ¹⁾)	85 (100 ²⁾)	100
Operational power for AC-1, AC-7a and AC-21:					
single-phase 230 V	P _e	kW	16 (19 ¹⁾)	19 (22 ²⁾)	22
three-phase 230 V			28 (32 ¹⁾)	32 (38 ²⁾)	38
three-phase 400 V			50 (56 ¹⁾)	56 (66 ²⁾)	66
Maximum operating frequency for AC-1, AC-7a and AC-21		op. c./h	600		
Electrical endurance for AC-1, AC-7a and AC-21		op. c.	200.000		
Rated operational current for AC-3, AC-7b and AC-23 (at 400 V)	I _e	A	43	63	70
Operational power for AC-3, AC-7b and AC-23:					
single-phase 230 V	P _e	kW	5.5	7.5	9
three-phase 230 V			12.5	15	18.5
three-phase 400 V			22	30	37
three-phase 500 V			30	40	45
three-phase 690 V			30	40	45
three-phase 1000 V			22	30	30
Maximum operating frequency for AC-3, AC-7b and AC-23		op. c./h	600		
Electrical endurance for AC-3, AC-7b and AC-23		op. c.	800.000	400.000	400.000
Rated operational current for AC-4 (at 400 V)	I _e	A	29	41	41
Operational power for AC-4:					
three-phase 400 V	P _e	kW	15	22	22
three-phase 500 V			18.5	25	25
Maximum operating frequency for AC-4		op. c./h	300		
Electrical endurance for AC-4		op. c.	40.000	20.000	20.000
Rated motor power according to standards UL and CSA:					
single-phase 120 V	P _e	HP	3	5	5
single-phase 240 V			7.5	10	10
three-phase 240 V			15	20	25
three-phase 480 V			25	30	40
three-phase 600 V			30	40	50
Maximum operating frequency for motors acc. to UL and CSA				op. c./h	600
Electrical endurance for motors acc. to UL and CSA		op. c.	800.000	400.000	400.000

¹⁾ Ratings for KNL43/63UL version

TECHNICAL DATA

Type	Symbol	Unit	KNL43 KNL43UL	KNL63 KNL63UL	KNL75
Switching of capacitors AC-6b and AC-7c (at 230 V)	C	µF	440	660	770
Maximum operating frequency for AC-6b and AC-7c		op. c./h		600	
Electrical endurance for AC-6b and AC-7c		op. c.		100.000	
Rated operational current for DC-1 (L/R ≤ 1 ms): 1 pole ... 24 V DC/ 48 V DC/ 60 V DC/ 110 V DC/ 220 V DC 2 poles in series ... 24 V DC/ 48 V DC/ 60 V DC/ 110 V DC/ 220 V DC 3 poles in series ... 24 V DC/ 48 V DC/ 60 V DC/ 110 V DC/ 220 V DC	I _e	A		50 / 50 / 50 / 8 / 6 70 / 70 / 70 / 60 / 36 70 / 70 / 70 / 60 / 50	
Maximum operating frequency for DC-1		op. c./h		300	
Terminal capacity: rigid (solid and stranded) flexible	S	mm ²		35 25	
Length of removed wire insulation		mm		16	
Screw				M6	
Screw head				PZ2	
Tightening torque		Nm		4	
Maximum back-up fuse for short-circuit protection gL and gG: coordination type 2	I _v	A		10	
Rated operational current for AC-15: single-phase 230 V single-phase 400 V single-phase 500 V single-phase 690 V	I _e	A		6 4 2 1	
Maximum operating frequency for AC-15		op. c./h		1.200	
Electrical endurance for AC-15		op. c.		1.000.000	
Terminal capacity: rigid (solid and stranded) flexible		mm ²		1 ... 2.5 1 ... 2.5	
Length of removed wire insulation		mm		10	
Screw				M3.5	
Screw head				PZ2	
Tightening torque		Nm		0.8	
Range of control voltage for switch-on	U _c	%		85 ... 110	
Range of control voltage for drop out	U _c	%		20 ... 75	
Kind of voltage				AC	
Standard control voltages	U _c	V		12 ... 500	
Frequency of AC control voltage	f	Hz		50/60	
Control mode				remote control with U _c	
Coil consumption: switch-on operation		VA/W		130/80 10/3	
Delays: make brake		ms		10 ... 20 8 ... 15	
Terminal capacity: rigid (solid and stranded) flexible		mm ²		1 ... 2.5 1 ... 2.5	
Length of removed wire insulation		mm		11	
Screw				M3.5	
Screw head				PZ2	
Tightening torque		Nm		0.8	
MTTF - Mean time to failure MTTF = 1/λ = B10/(0.1 n _{op})	AC-1 AC-3	h	20.000	5.000	10.000
MTTF _d - Mean time to failure dangerous MTTF _d = 1/λ _d = B10 _d /(0.1 n _{op})	AC-1 AC-3	h	26.666	6.666	13.333
B10 - Number of operating cycles until 10 % of devices fail	AC-1 AC-3	op. c.	600.000	150.000	300.000
B10 _d - Number of operating cycles until 10 % of device dangerous B10 _d = B10/ratio of dangerous failures	AC-1 AC-3	op. c.	800.000	200.000	400.000
λ - Failure rate λ = (0.1 n _{op})/B10	AC-1 AC-3	1/h	0.00005	0.0002	0.0001
λ _d - Failure rate dangerous λ _d = (0.1 n _{op})/B10 _d	AC-1 AC-3	1/h	0.00004	0.00015	0.000075
Ratio of dangerous failures		%		75	
n _{op} - Operating cycles (operating cycles/h)		op. c./h		300	

1) 12,24,48,110/125,220/240,380/415,440/460,480/520,550/600 V