

CONTACTORS - KNL43 - KNL75

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CONTACTORS ARE AN ELECTRICALLY REMOTE CONTROLLED SWITCHES USED FOR SWITCHING A POWER CIRCUIT. THOSE CONTACTORS ARE MAINLY USED FOR SWITCHING ELECTRIC MOTORS, PUMPS, COMPRESSORS, SYSTEMS FOR ENERGY ALTERNATIVE SOURCES, LAMPS ETC.



FOR UNIVERSAL SWITCHING:

- All kind of motors
- Electric heating
- Lights and lightning
- Capacitor
- Other eletrical loads

ADVANCED OPERATION:

- Control combinations

OTHER BENEFITS:

- High contact reliabillity at low voltages
- High electrical and mechanical endurance and high switching capacity
- Wide range of control voltages is available

GENERAL	Type	Symbol	Unit	KNL43 KNL43UL	KNL63 KNL63UL	KNL75
	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			-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			
MAIN CIRCUIT	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 ^{*)}	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 ^{*)}	85 (100 ^{*)}	100
	Rated operational current for AC-1, AC-7a and AC-21	I _e	A	75 (85 ^{*)}	85 (100 ^{*)}	100
	Operational power for AC-1, AC-7a and AC-21:					
	single-phase 230 V	P _e	kW	16 (19 ^{*)}	19 (22 ^{*)}	22
	three-phase 230 V			28 (32 ^{*)}	32 (38 ^{*)}	38
	three-phase 400 V			50 (56 ^{*)}	56 (66 ^{*)}	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-3e, AC-7b and AC-23 (at 400 V)	I _e	A	43	63	70
	Operational power for AC-3, AC-3e, 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-3e, AC-7b and AC-23		op. c./h	600		
	Electrical endurance for AC-3, AC-3e, 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	

^{*)} Ratings for KNL43/63UL version

	Type	Symbol	Unit	KNL43 KNL43UL	KNL63 KNL63UL	KNL75
MAIN CIRCUIT	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	I _e	A	50 / 50 / 50 / 8 / 6		
	2 poles in series ... 24 V DC/ 48 V DC/ 60 V DC/ 110 V DC/ 220 V DC			70 / 70 / 70 / 60 / 36		
	3 poles in series ... 24 V DC/ 48 V DC/ 60 V DC/ 110 V DC/ 220 V DC			70 / 70 / 70 / 60 / 50		
	Maximum operating frequency for DC-1		op. c./h		300	
	Terminal capacity:					
	rigid (solid and stranded)	S	mm ²		35	
	flexible				25	
	Length of removed wire insulation		mm		16	
AUXILIARY CIRCUIT	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	I _e	A		6	
	single-phase 400 V				4	
	single-phase 500 V				2	
	single-phase 690 V				1	
	Maximum operating frequency for AC-15		op. c./h		1.200	
	Electrical endurance for AC-15		op. c.		1.000.000	
	Terminal capacity:					
COIL	rigid (solid and stranded)		mm ²		1 ... 2,5	
	flexible				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	
SAFETY	Coil consumption:					
	switch-on	VA/W		130/80		
	operation			10/3		
	Delays:					
	make	ms		10 ... 20		
	brake			8 ... 15		
	Terminal capacity:					
	rigid (solid and stranded)	mm ²		1 ... 2,5		
	flexible			1 ... 2,5		
	Length of removed wire insulation		mm		11	
	Screw				M3,5	
	Screw head				PZ2	
SAFETY	Tightening torque		Nm		0,8	
	MTTF - Mean time to failure	AC-1	h	5.000		
	MTTF = 1/λ = B10/(0,1 n _{op})	AC-3		20.000	10.000	
	MTTF _d - Mean time to failure dangerous	AC-1	h	6.666		
	MTTF _d = 1/λ _d = B10 _d /(0,1 n _{op})	AC-3		26.666	13.333	
	B10 - Number of operating cycles until 10 % of devices fail	AC-1	op. c.	150.000		
		AC-3		600.000	300.000	
	B10 _d - Number of operating cycles until 10 % of device dangerous	AC-1	op. c.	200.000		
	B10 _d = B10/ratio of dangerous failures	AC-3		800.000	400.000	
	λ - Failure rate	AC-1	1/h	0.0002		
	λ = (0,1 n _{op})/B10	AC-3		0.00005	0.0001	
	λ _d - Failure rate dangerous	AC-1	1/h	0.00015		
	λ _d = (0,1 n _{op})/B10 _d	AC-3		0.00004	0.000075	
SAFETY	Ratio of dangerous failures		%	75		
	n _{op} - Operating cycles (operating cycles/h)		op. c./h	300		

Electrical endurance

Diagram 1
Electrical endurance of motor contactors KNL43 - KNL75, KNL43UL, KNL63UL – **AC-3, AC-3e**

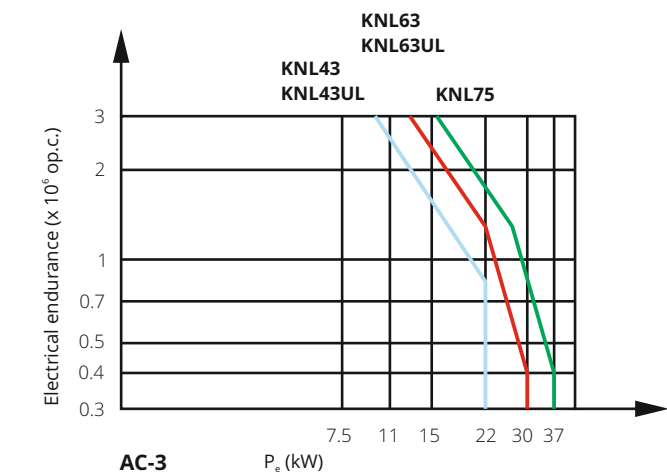
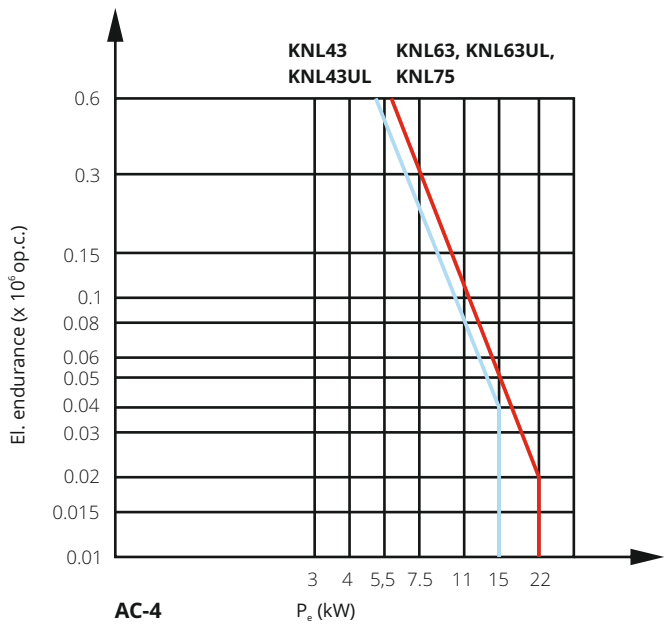


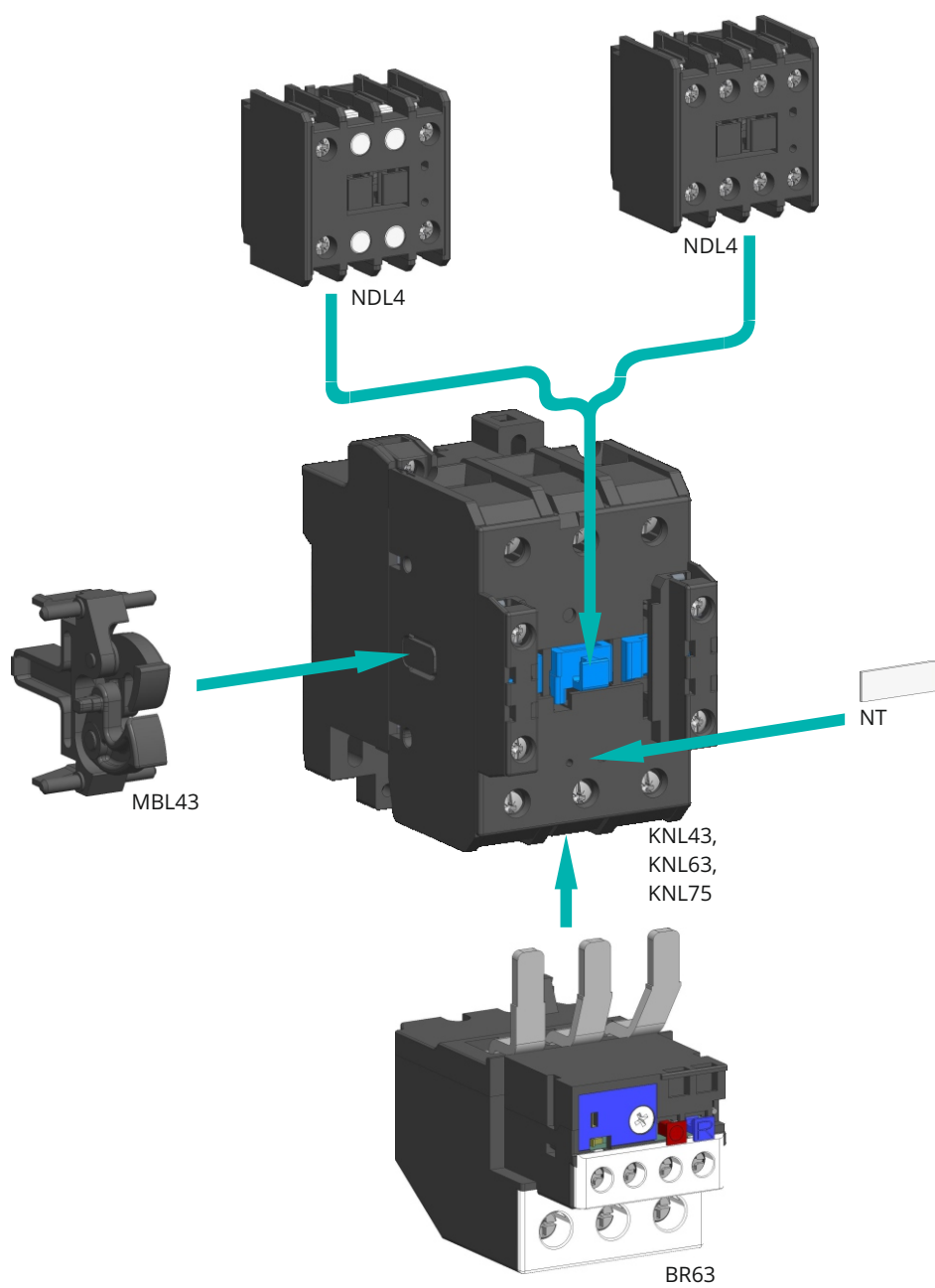
Diagram 2
Electrical endurance of motor contactors KNL43 - KNL75, KNL43UL, KNL63UL – **AC-4**



KNL43 - KNL75

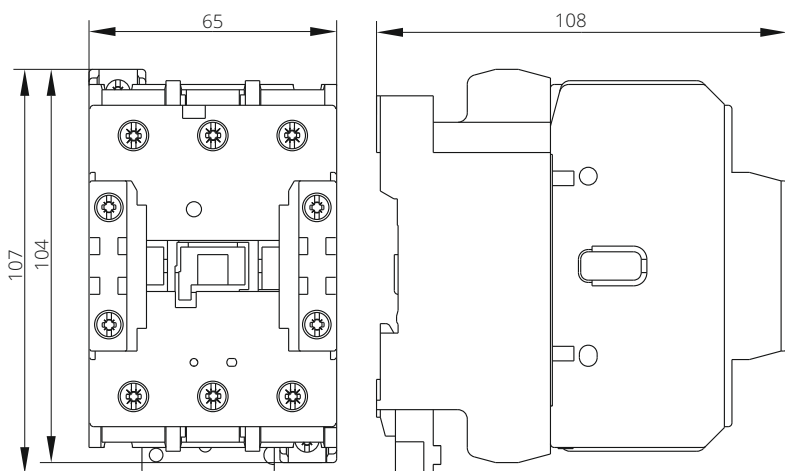
Mounting positions of accessories

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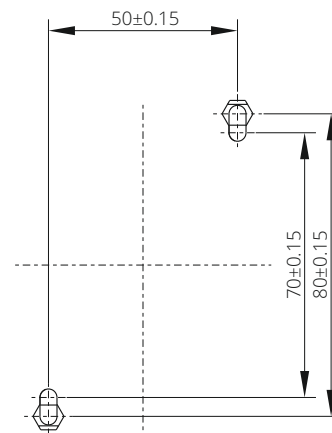


TECHNICAL DATA

KNL43 ... KNL75 KNL43UL, KNL63UL

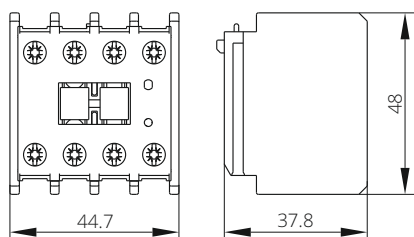


KNL43 ... KNL75 - drilling plan KNL43UL, KNL63UL

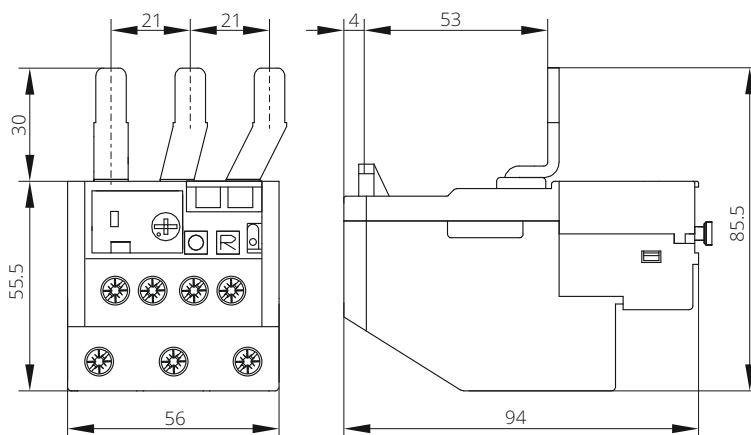


NDL4

Two and four-pole snap-on auxiliary switch blocks
(mounting on a basic contactor)

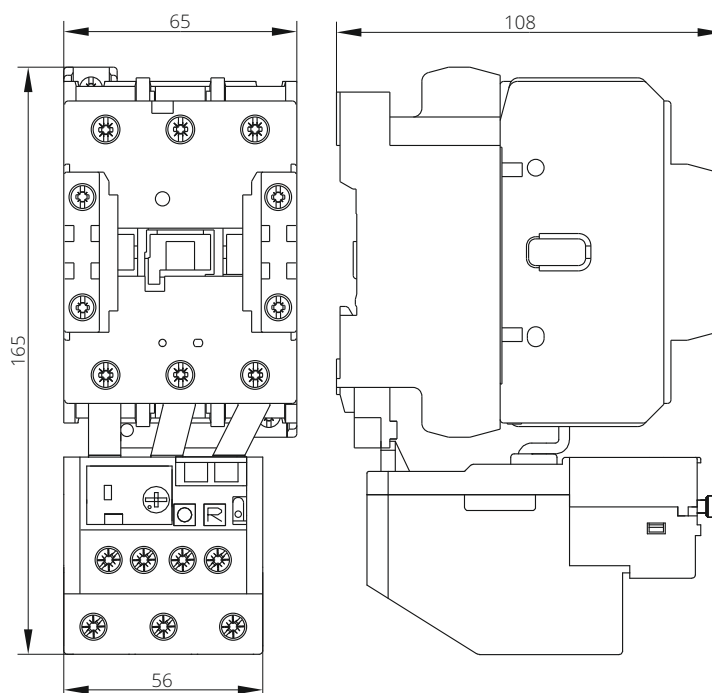


BR63 thermal overload relay



KNL43 ... KNL75 + BR63 KNL43UL + BR63, KNL63UL + BR63

Contactor + thermal overload relay



Teknisk support eller andre henvendelser vennligst kontakt.

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