

Contactors

KNL CONTACTORS

KNL6, KNL9, KNL12, KNL16, KNL18, KNL22, KNL30



- Contactors are used for switching electric motors and other resistive inductive and capacitive loads
- A wide variety of snap-on auxiliary switch blocks and accessories
- Uniform marking of connection terminals in accordance with EN 50005 and EN 50011
- Quick assembly to a 35 mm wide mounting rail in accordance with EN 60715 or fixing with screws
- KNL6 - KNL18 are 4-pole and KNL22 - KNL30 are 3-pole contactors
- Open and funnel-shaped connection terminals - fast and simple connection
- Plus/minus screws, protected against falling out - standard or posidrive screwdrivers can be used
- High contact reliability at low voltages
- Possibility of individual marking on a special plate - easy identification of a contactor in the circuit
- Auxiliary contact with a pushbutton function
- Uniform contactor width - 45 mm
- Assembly to vertical or horizontal surface with $\pm 20^\circ$ deviation
- Third coil terminal
- Possibility of direct connection of a bimetal relay for protection against overload and in case of phase failure
- Version with all four main contacts (Sp4) (KNL9 - KNL18)
- Degree of protection IP20
- High electrical and mechanical endurance, and high switching capacity
- Existing version KNL18 St4 for utilization category AC-6b (300 uF)

TECHNICAL DATA				MOTOR CONTACTORS							
GENERAL	Type			KNL9	KNL12	KNL16	KNL18	KNL22	KNL30		
	Standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 508							
	Approvals			UL, CSA (except for KNL18), GOST							
	Climatic category			constant damp heat acc. to IEC 60068-2-78 cyclic damp heat acc. to IEC 60068-2-30							
	Ambient temperature	open closed	°C	-25 ... +55 -25 ... +45							
	Storage temperature		°C	-30 ... +80							
	Contact reliability			17 V ; \geq 50 mA							
	Mechanical endurance		op. c.	107							
	Max. mechanical operating frequency with no load		c/h	3000							
	Max. electrical operating frequency AC-3/AC-4/AC-15/DC-13/ DC-1 to DC5/AC-6B		op. c/h	600/300/1200/1200/300/600							
	Weight		kg	0.3				0.32			
	MAIN CIRCUIT	Rated insulation voltage	U_i	V	690						
Thermal current at $\leq 40^\circ\text{C}$		I_{th}	A	25	25	25	32	35	35		
Rated frequency		f	Hz	50/60							
Rated motor power		single-phase	230 V	P_e	kW	1.5	1.5	2.2	2.2	2.2	3.7
			230 V			2.2	3	4	4	5.5	7.5
		three-phase	400 V			4	5.5	7.5	9	11	15
			500 V			5.5	5.5	7.5	9	11	15
			690 V			5.5	7.5	7.5	9	11	15
Rated operational current		single-phase	230 V	I_e	A	12	12	17	17	17	28
			230 V			8.7	11.5	14.8	14.8	19.6	26.4
		three-phase	400 V			9	12	16	18	22	30
			500 V			9	9	12.1	14	17.4	23.4
	690 V		6.5			8.8	8.8	10	12.6	17	
Rated motor power	three-phase	230 V	P_e	kW	0.75	1.1	1.5	1.5	2.2	4	
		400 V			1.5	2.2	3	3	4	6.5	
		500 V			1.5	2.2	3	3	4	6.5	
		690 V			1.5	2.2	3	3	4	6.5	
					1.5	2.2	3	3	4	6.5	

Contactor versions: KNL6 (-40, -22, -31) KNL9-KNL18 (-10, -01, Sp4 -01, Sp4 -10) KNL9-KNL16 (Sp4 -22, Sp4 -04) KNL22- KNL30 (-00)

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TECHNICAL DATA					MOTOR CONTACTORS						
MAIN CIRCUIT	Type				KNL9	KNL12	KNL16	KNL18	KNL22	KNL30	
	Rated motor power according to UL	single-phase	115 V	P_e	HP	1	1	1½	1½	2	2
		230 V	2			2	3	3	3	3	5
	three-phase	230 V	3	3	5	5	7½	7½	7½	10	10
		460 V	5	5	7½	7½	15	15	15	20	20
		575 V	7½	7½	10	10	15	15	15	20	20
	Electrical endurance of contacts AC-3 / AC-4				op.c.	diagram 2 / diagram 3					
	Rated operational current at 24/110/220 V	DC-1	1 1)	I_e	A	15 / 6 / 4			28 / 7 / 4		
			2 1)			18 / 12 / 8			30 / 23 / 13		
	3 1)	20 / 15 / 10				32 / 25 / 20					
1) Number of poles in series	DC-3 - DC-5	1 1)	I_e	A	12 / 2 / 0.75			18 / 2 / 1			
		2 1)			15 / 8 / 1.5			23 / 13 / 2			
		3 1)			18 / 12 / 6			28 / 18 / 9			
Max. back-up fuse for short-circuit protection gL Coordination type 2			I_v	A	25	25	35	35	50	50	
Terminal capacity	rigid	S	mm^2	0.75 ... 6			2.5 ... 10				
	flexible			0.5 ... 6			1.5 ... 10				
Screw					M3.5			M4			
Screw head					PZ2			PZ2			
Tightening torque				Nm	1.4			1.8			
AUXILIARY CIRCUIT	Rated insulation voltage		U_i	V	690			-			
	Thermal current		I_{th}	A	20			-			
	Rated operational current AC-15	230 V	I_e	A	6			-			
		400 V			4			-			
		500 V			2			-			
		690 V			1			-			
	Rated operational current DC-13	24 V	I_e	A	10			-			
		60 V			4			-			
		110 V			0.9			-			
		220 V			0.4			-			
Max. back-up fuse for short-circuit protection gL Coordination type 2			I_v	A	20			-			
Terminal capacity	rigid	S	mm^2	0.75 ... 6			-				
	flexible			0.5 ... 6			-				
Screw					M3.5			-			
Screw head					PZ2			-			
Tightening torque				Nm	1.4			-			
MAGNETIC SYSTEM	Coil consumption	switch-on	P_c	VA	66						
		operation		W	48						
	Make / Break delay	make	NO	ms	10 - 20			10 - 20			
			NC		15 - 25			-			
		break	NO		10 - 15			5 - 15			
			NC		8 - 15			-			
	Range of control voltage		U_c	%	85 ... 110						
	Control voltages		U_c	V	12 ... 600						
	Terminal capacity	rigid	S	mm^2	0.75 ... 4						
		flexible			0.5 ... 2.5						
Screw					M3.5						
Screw head					PZ2						
Tightening torque				Nm	1.4						

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TECHNICAL DATA				CONTACTOR RELAYS	
GENERAL	Type			KNL6	
	Standards			IEC / EN 60947-5-1, UL 508	
	Approvals			UL, CSA, GOST	
	Climatic class			constant damp heat (IEC 60068-2-78) cyclic damp heat (IEC 60068-2-30)	
	Ambient temperature	open	°C	-25 ... +55	
		closed		-25 ... +40	
	Storage temperature		°C	-30 ... +80	
	Mechanical endurance		op. c.	10 ⁷	
	Max. mechanical operating frequency with no load		op. c./h	3000	
	Max. electrical operating frequency AC-15/DC-13		op. c./h	1200/1200	
Weight		kg	0.3		
MAIN CIRCUIT	Rated insulation voltage		U_i V	690	
	Thermal current		I_{th} A	20	
	Rated operational current AC-15	230 V	I_e	A	6
		400 V			4
		500 V			2
		690 V			1
	Rated operational current DC-13	24 V	I_e	A	10
		60 V			4
		110 V			0.9
		220 V			0.4
Electrical endurance of contacts AC-15		op. c.		diagram 1	
Max. back-up fuse for short-circuit protection gL Coordination type 2		I_v	A	20	
MAGNETIC SYSTEM	Coil consumption	switch-on	P_c	VA	66
				W	48
	operation	VA	8		
		W	2.5		
	Make / Break delay	make	NO	ms	10 - 15
			NC		15 - 20
		break	NO	10 - 15	
			NC	8 - 15	
	Rated control voltage limits for closing		U_c	%	85 ... 110
	Control voltages		U_c	V	12 ... 600
Terminal capacity	rigid	S	mm ²	0.75 ... 4	
	flexible			0.5 ... 2.5	
Screw				M3.5	
Screw head				PZ2	
Tightening torque			Nm	1.4	

Standard control voltages and designations (AC)

V	24	42	48	110/125	220/240	380/415	440	480/520
50/60 Hz	B7	D7	E7	F7	M7	Q7	R7	S7

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ELECTRICAL ENDURANCE

DIAGRAM 1

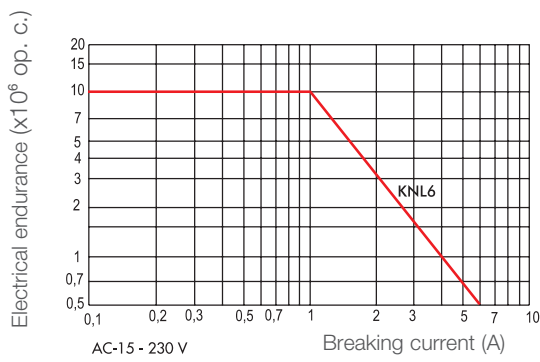


DIAGRAM 2

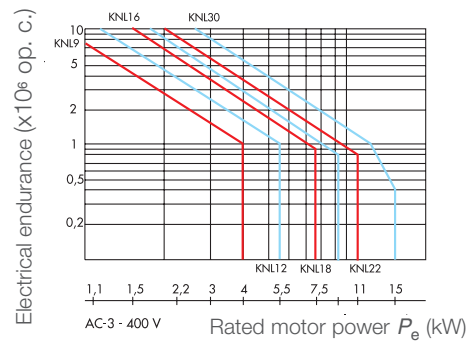
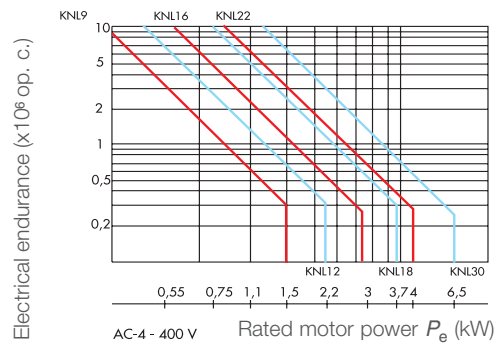
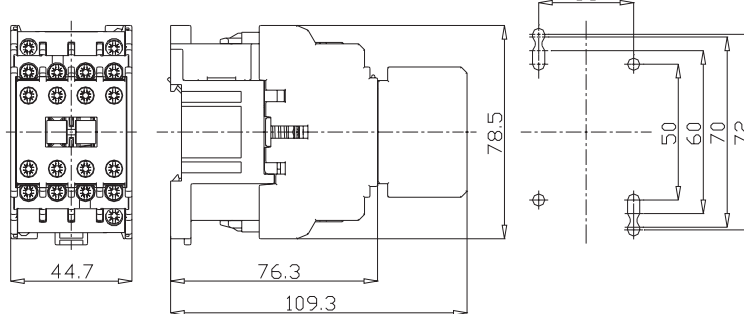


DIAGRAM 3

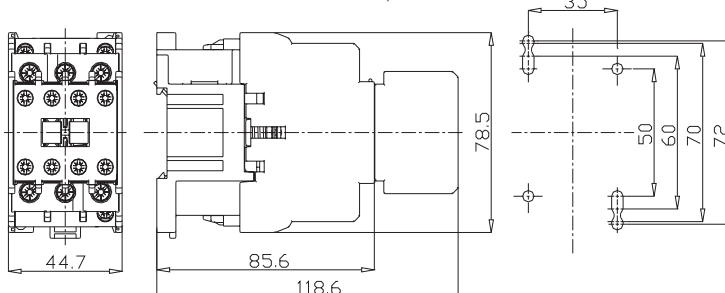


DIMENSIONS

KNL6,KNL9,KNL12, KNL16, KNL18



KNL22, KNL30

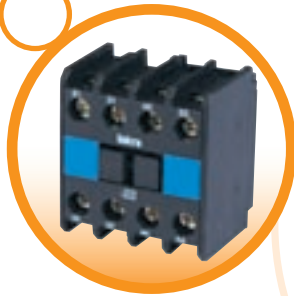


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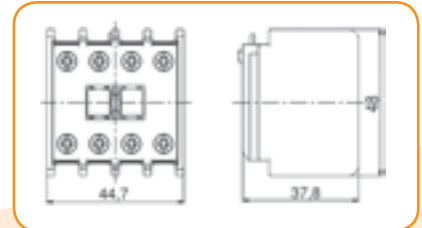
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ACCESSORIES



NDL1, NDL2, NDL3 - Two- and four-pole snap-on auxiliary switch blocks (mounting on a basic contactor)

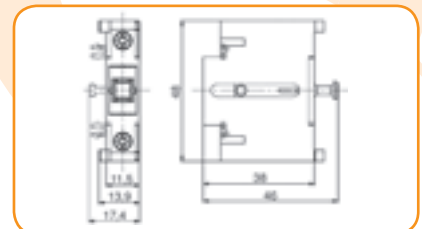


Type	Version	Rated operational current I_e (A) at AC-15			
		230 V	400 V	500 V	690 V
NDL1 (for KNL6)	-11, -02, -20, -22, -31, -13, -40, -04	6	4	2	1
NDL2 (for KNL9, KNL12, KNL16, KNL18)	-11, -02, -20, -22, -31, -13, -40, -04				
NDL3 (for KNL22, KNL30)	-11, -02, -20, -22, -31, -13, -40, -04				

NDL1-20		NDL1-11		NDL1-02		NDL1-40		NDL1-31	
NDL1-22		NDL1-13		NDL1-04		NDL2-11		NDL2-02	
NDL2-22		NDL2-31		NDL2-13		NDL2-40		NDL2-04	
NDL3-11		NDL3-02		NDL3-22		NDL3-31		NDL3-13	
NDL2-20		NDL3-20		NDL3-40		NDL3-04			



NPL1, NPL2 - Single-pole snap-on auxiliary switch block for side mounting + push-button



Type	Version	Rated operational current I_e (A) at AC-15			
		230 V	400 V	500 V	690 V
NPL1 (only for KNL9, KNL12, KNL16, KNL18)	-10, -01	6	4	2	1
NPL2 (only for KNL22, KNL30)	-10, -01				

CONTACT ARRANGEMENTS

NPL1-10		NPL1-01		NPL2-10		NPL2-01	
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Contactors

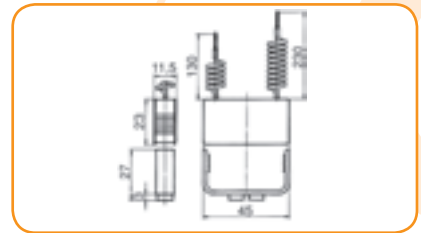
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ACCESSORIES



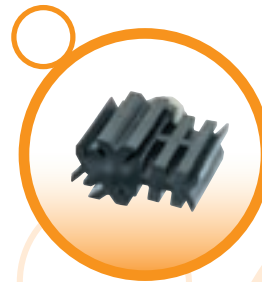
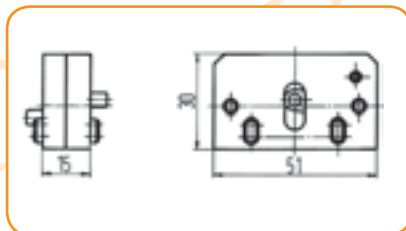
RC suppressor



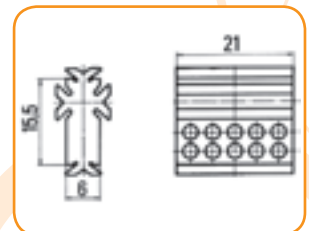
Type	RC1	RC2	RC3	RC4
Control voltage range U_c (V)	24 ... 48	48 ... 250	250 ... 380	380 ... 500



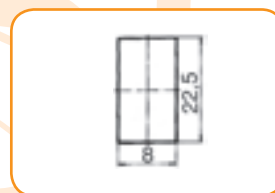
MBL mechanical interlock



DZ distance spacer



NT identification plate

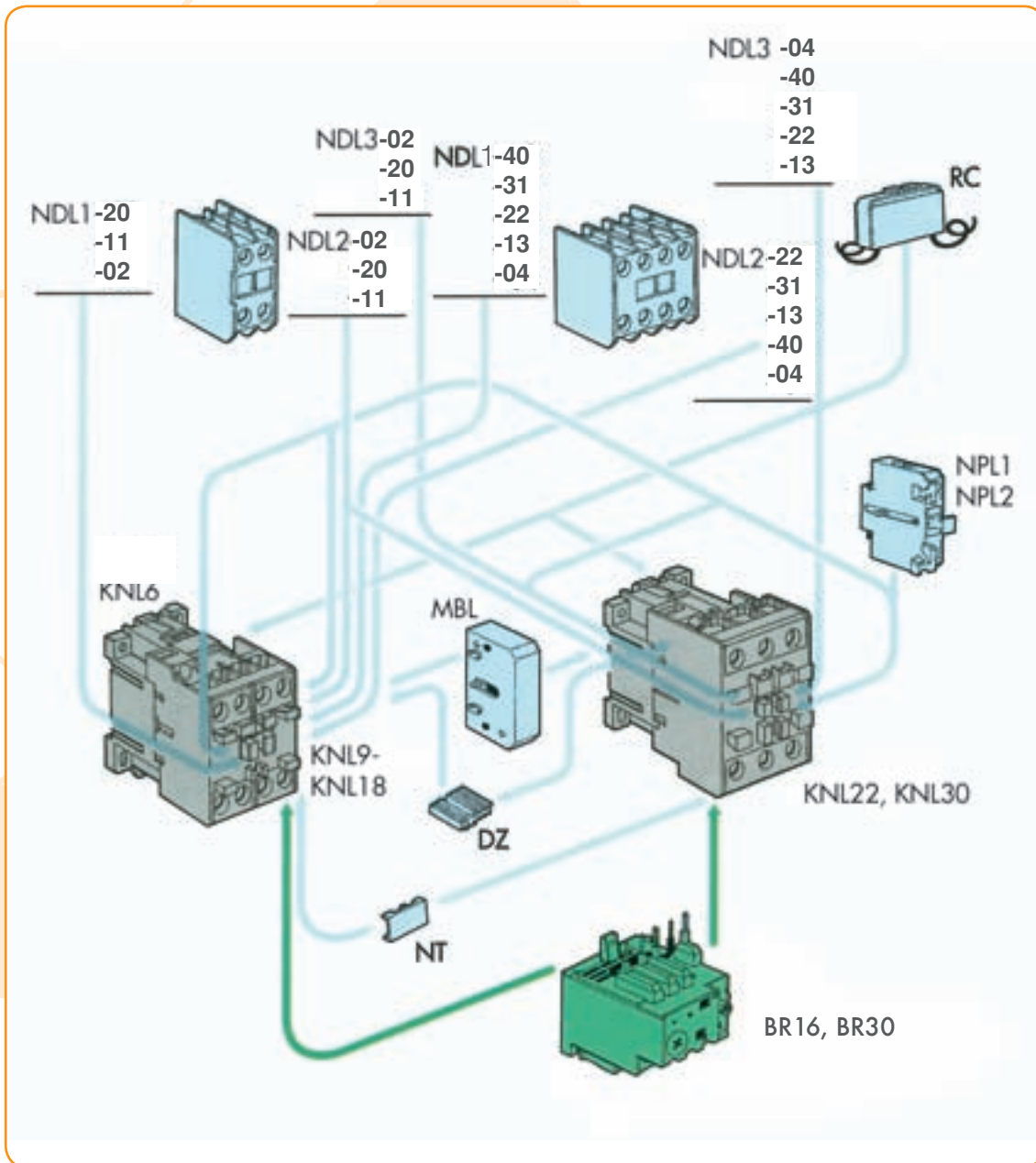


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MOUNTING POSITIONS OF ACCESSORIES



ORDERING DATA

The type designation and control voltage are stated when ordering the contactors.

KNL16-10 - M7

Control voltage
(see page 12), frequency
Type