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 ±20° 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)

TEHNICAL 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		°C	-25 … +55					
			closed			-25 … +45					
	Storage temperature				°C	-30 … +80					
	Contact reliability					17 V ; ≥ 50 mA					
	Mechanical endurance				op. c.	10^7					
	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 ≤ 40°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
	AC-3	three-phase	230 V			2.2	3	4	4	5.5	7.5
			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
	AC-3	three-phase	230 V			8.7	11.5	14.8	14.8	19.6	26.4
			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
	AC-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

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

KNL CONTACTORS

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

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	5
		three-phase	230 V			3	3	5	5	7½	10
			460 V			5	5	7½	7½	15	20
			575 V			7½	7½	10	10	15	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]			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	mm²	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	mm²	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					
					W	48					
			operation		VA	8					
					W	2.5					
	Make / Break delay		make		NO	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	mm²	0.75 … 4					
			flexible			0.5 … 2.5					
	Screw					M3.5					
	Screw head					PZ2					
	Tightening torque				Nm	1.4					

KNL CONTACTORS

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

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	mm²	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

KNL CONTACTORS

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

ELECTRICAL ENDURANCE

DIAGRAM 1

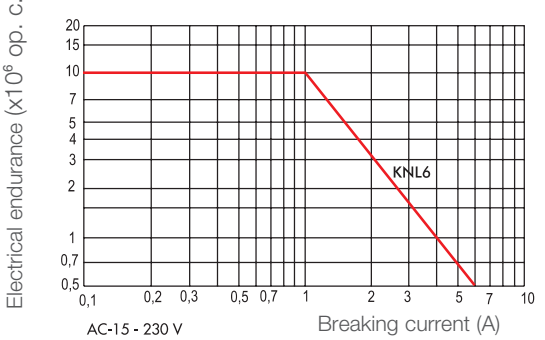


DIAGRAM 2

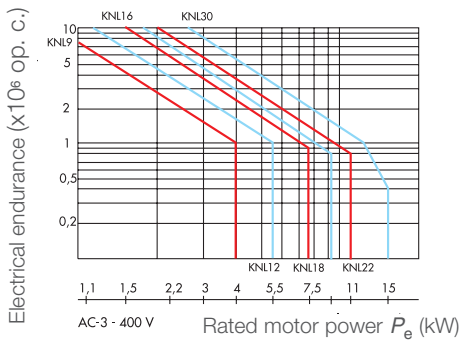
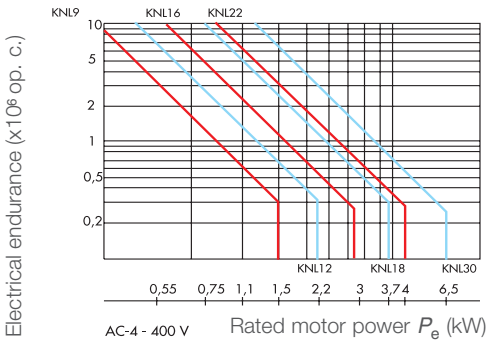
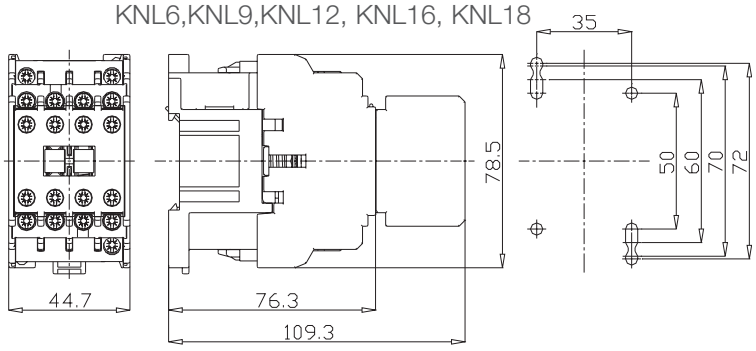


DIAGRAM 3

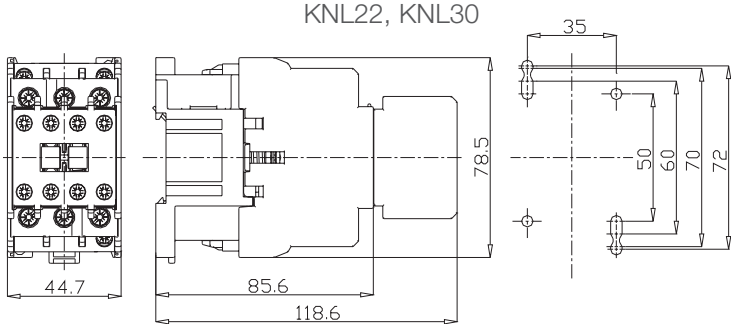


DIMENSIONS

KNL6,KNL9,KNL12, KNL16, KNL18



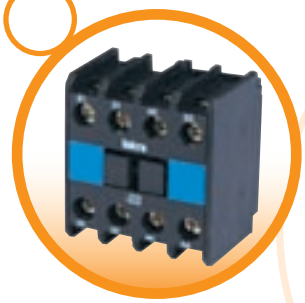
KNL22, KNL30



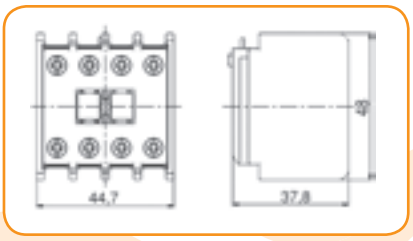
KNL CONTACTORS

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

ACCESSORIES



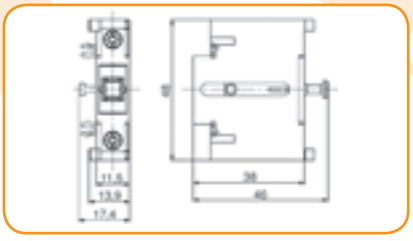
NDL1, NDL1, NDL3 - Two- and four-pole snap-on auxiliary switch blocks (mounting on a basic contactor)



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	53 63 54 64	NDL1-11	53 61 54 62	NDL1-02	51 61 52 62	NDL1-40	53 63 73 83 54 64 74 84	NDL1-31	53 61 73 83 54 62 74 84
NDL1-22	53 61 71 83 54 62 72 84	NDL1-13	53 61 71 81 54 62 72 82	NDL1-04	51 61 71 81 52 62 72 82	NDL2-11	21 33 22 34	NDL2-02	21 31 22 32
NDL2-22	21 31 43 53 22 32 44 54	NDL2-31	21 33 43 53 22 34 44 54	NDL2-13	21 31 41 53 22 32 42 54	NDL2-40	23 33 43 53 24 34 44 54	NDL2-04	21 31 41 51 22 32 42 52
NDL3-11	13 21 14 22	NDL3-02	21 31 22 32	NDL3-22	13 21 31 43 14 22 32 44	NDL3-31	13 21 33 43 14 22 34 44	NDL3-13	13 21 31 41 14 22 32 42
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	23 24	NPL1-01	21 22	NPL2-10	13 14	NPL2-01	21 22

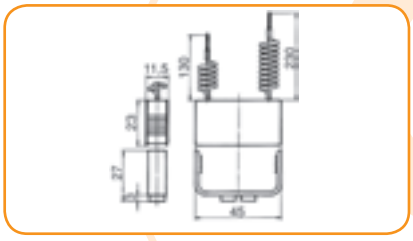
At all KNL6-KNL30 contactor versions, both snap-on auxiliary switch blocks with KNL+NDL+NPL auxiliary contacts can be used simultaneously.

KNL CONTACTORS

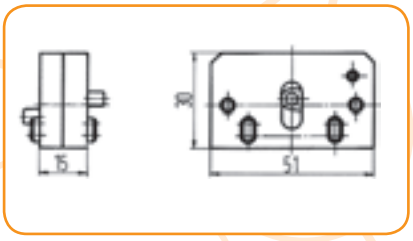
KNL6, KNL9, KNL12, KNL16, KNL18, KNL22, KNL30

ACCESSORIES

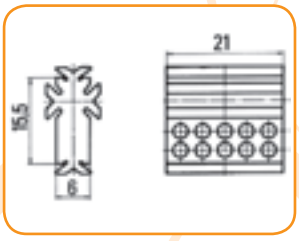
RC suppressor



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

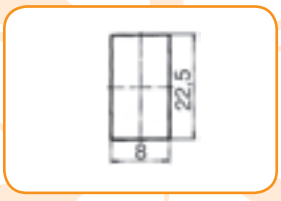


MBL mechanical interlock



DZ distance spacer

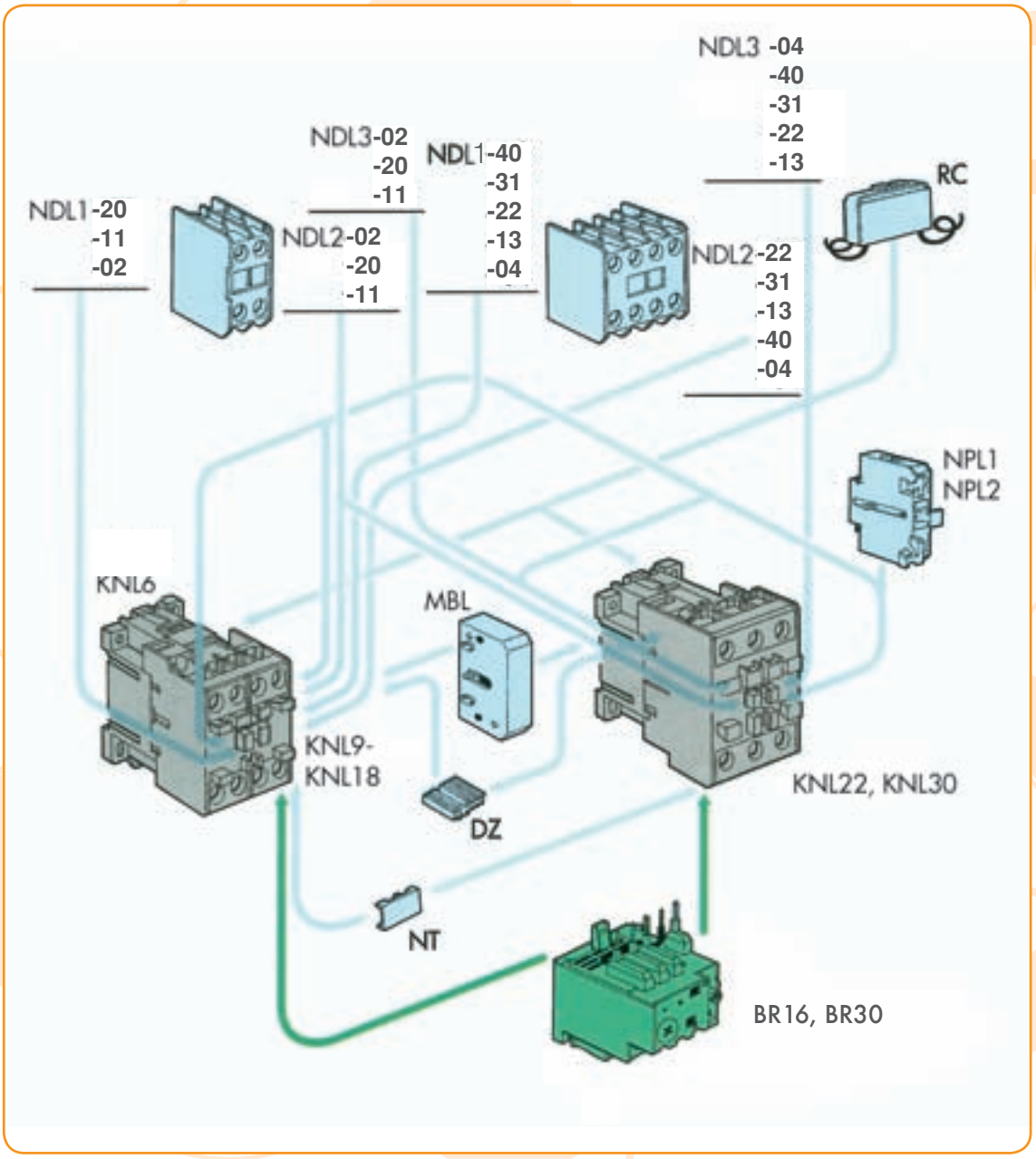
NT identification plate



KNL CONTACTORS

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

MOUNTING POSITIONS OF ACCESSORIES



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

KNL16-10 - M7

- M7: Control voltage (see page 12), frequency
- KNL16-10: Type