CONTACTORS ARE ELECTRICALLY REMOTE CONTROLLED SWITCHES USED FOR SWITCHING A POWER CIRCUIT. CONTACTORS ARE MAINLY USED FOR SWITCHING MOTORS, BUILDING AUTOMATION SYSTEMS AND APPLICATIONS INCLUDING USE IN MACHINES.

FOR UNIVERSAL SWITCHING:

- All kind of motors
- Building automation systems
- Applications include use in machines

ADVANCED OPERATION:

- Control combinations

OTHER BENEFITS:

- A wide variety of snap-on auxiliary switch blocks and accessories
- AC or real DC drive with low consumption
- High contact reliability at low voltage
- Two contactor widths: 35 and 45 mm
- Degree of protection IP 20
- K07F version for fast-on connection or
- KO7X contactors with soldering pins
- Possibility of direct connection of the BR 6 bimetal relay for protection against overload and in case of phase failure
- Version with all four main contacts (Sp4)
- Wide range of control voltages is avalible

ORDERING DATA

AC and DC contactor relays ..... page 1-3
AC and DC motor contactors ..... page 1-4
Accessories ..... page 1-6

Example for Ordering data ..... page 1-8
Technical characteristics ..... page 1-9
Dimensions ..... page 1-17

CONTACTOR RELAYS

AC-15 acc. to IEC/EN 60947-5-1 (4-pole, 35 mm widths)

AC

Type	Rated current I_e	Control voltage 50/60 Hz	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
K03C-22 Q7	4 A	380/415 V	A1 13 21 31 43 / A2 14 22 32 44	30.041.215	160	10
K03C-22 M7	4 A	220/240 V		30.041.156	160	10
K03C-22 B7	4 A	24 V		30.040.307	160	10
K03C-31 Q7	4 A	380/415 V	A1 13 21 33 43 / A2 14 22 34 44	30.041.216	160	10
K03C-31 M7	4 A	220/240 V		30.041.155	160	10
K03C-31 B7	4 A	24 V		30.040.306	160	10
K03C-40 Q7	4 A	380/415 V	A1 13 23 33 43 / A2 14 24 34 44	30.041.217	160	10
K03C-40 M7	4 A	220/240 V		30.041.154	160	10
K03C-40 B7	4 A	24 V		30.040.310	160	10

AC-15 acc. to IEC/EN 60947-5-1 (4-pole, 45 mm widths)

AC

Type	Rated current I_e	Control voltage 50/60 Hz	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
K07C-22 Q7	4 A	380/415 V		30.041.291	180	10
K07C-22 M7	4 A	220/240 V		30.041.124	180	10
K07C-22 B7	4 A	24 V		30.040.701	180	10
K07CF-22 Q7	4 A	380/415 V	A1 13 21 31 43 / A2 14 22 32 44	30.041.292	180	10
K07CF-22 M7	4 A	220/240 V		30.041.189	180	10
K07CF-22 B7	4 A	24 V		30.041.293	180	10
K07CX-22 Q7	4 A	380/415 V		30.041.298	180	10
K07CX-22 M7	4 A	220/240 V		30.041.299	180	10
K07CX-22 B7	4 A	24 V		30.041.300	180	10
K07C-31 Q7	4 A	380/415 V		30.041.221	180	10
K07C-31 M7	4 A	220/240 V		30.041.170	180	10
K07C-31 B7	4 A	24 V		30.040.339	180	10
K07CF-31 Q7	4 A	380/415 V	A1 13 21 33 43 / A2 14 22 34 44	30.041.294	180	10
K07CF-31 M7	4 A	220/240 V		30.041.190	180	10
K07CF-31 B7	4 A	24 V		30.041.295	180	10
K07CX-31 Q7	4 A	380/415 V		30.041.301	180	10
K07CX-31 M7	4 A	220/240 V		30.041.302	180	10
K07CX-31 B7	4 A	24 V		30.041.303	180	10
K07C-40 Q7	4 A	380/415 V		30.041.222	180	10
K07C-40 M7	4 A	220/240 V		30.041.125	180	10
K07C-40 B7	4 A	24 V		30.040.340	180	10
K07CF-40 Q7	4 A	380/415 V	A1 13 23 33 43 / A2 14 24 34 44	30.041.296	180	10
K07CF-40 M7	4 A	220/240 V		30.041.136	180	10
K07CF-40 B7	4 A	24 V		30.041.297	180	10
K07CX-40 Q7	4 A	380/415 V		30.041.304	180	10
K07CX-40 M7	4 A	220/240 V		30.041.305	180	10
K07CX-40 B7	4 A	24 V		30.041.306	180	10

AC-15 acc. to IEC/EN 60947-5-1 (4-pole, 45 mm widths)

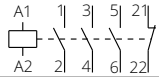
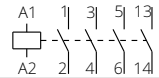
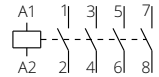
DC

Type	Rated current I_e	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
K07CG-22 MD	4 A	220 V	A1 13 21 31 43 / A2 14 22 32 44	30.040.110	220	10
K07CG-22 ED	4 A	48 V		30.040.109	220	10
K07CG-22 BD	4 A	24 V		30.040.107	220	10
K07CGX-22 MD	4 A	220 V		30.041.329	220	10
K07CGX-22 ED	4 A	48 V		30.041.330	220	10
K07CGX-22 BD	4 A	24 V		30.041.331	220	10
K07CG-31 MD	4 A	220 V	A1 13 21 33 43 / A2 14 22 34 44	30.040.106	220	10
K07CG-31 ED	4 A	48 V		30.040.105	220	10
K07CG-31 BD	4 A	24 V		30.040.103	220	10
K07CGX-31 MD	4 A	220 V		30.041.332	220	10
K07CGX-31 ED	4 A	48 V		30.041.333	220	10
K07CGX-31 BD	4 A	24 V		30.041.334	220	10
K07CG-40 MD	4 A	220 V	A1 13 23 33 43 / A2 14 24 34 44	30.040.102	220	10
K07CG-40 ED	4 A	48 V		30.040.101	220	10
K07CG-40 BD	4 A	24 V		30.040.099	220	10
K07CGX-40 MD	4 A	220 V		30.041.335	220	10
K07CGX-40 ED	4 A	48 V		30.041.336	220	10
K07CGX-40 BD	4 A	24 V		30.041.337	220	10

MOTOR CONTACTORS

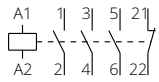
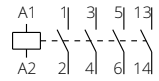
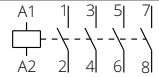
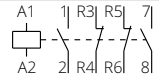
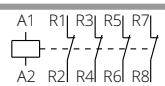
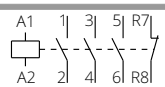
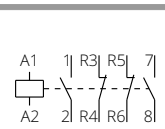
AC-3 acc. to IEC/EN 60947-4-1 (4-pole, 35 mm widths)

AC

Type	Rated current I_e	Control voltage 50/60 Hz	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
K03M-01 Q7	8.5 A	380/415 V		30.041.218	160	10
K03M-01 M7	8.5 A	220/240 V		30.041.157	160	10
K03M-01 B7	8.5 A	24 V		30.040.277	160	10
K03M-10 Q7	8.5 A	380/415 V		30.041.220	160	10
K03M-10 M7	8.5 A	220/240 V		30.041.153	160	10
K03M-10 B7	8.5 A	24 V		30.040.279	160	10
K03M-10/Sp4 Q7	8.5 A	380/415 V		30.041.290	160	10
K03M-10/Sp4 M7	8.5 A	220/240 V		30.041.144	160	10
K03M-10/Sp4 B7	8.5 A	24 V		30.041.023	160	10

AC-3 acc. to IEC/EN 60947-4-1 (4-pole, 45 mm widths)

AC

Type	Rated current I_e	Control voltage 50/60 Hz	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
K07M-01 Q7	11.3 A	380/415 V		30.041.274	180	10
K07M-01 M7	11.3 A	220/240 V		30.041.172	180	10
K07M-01 B7	11.3 A	24 V		30.040.743	180	10
K07MF-01 Q7	11.3 A	380/415 V		30.041.312	180	10
K07MF-01 M7	11.3 A	220/240 V		30.041.192	180	10
K07MF-01 B7	11.3 A	24 V		30.040.196	180	10
K07MX-01 Q7	11.3 A	380/415 V		30.041.318	180	10
K07MX-01 M7	11.3 A	220/240 V		30.041.319	180	10
K07MX-01 B7	11.3 A	24 V		30.041.320	180	10
K08M-01 Q7	15.5 A	380/415 V		30.041.323	180	10
K08M-01 M7	15.5 A	220/240 V		30.041.324	180	10
K08M-01 B7	15.5 A	24 V		30.041.325	180	10
K07M-10 Q7	11.3 A	380/415 V		30.041.231	180	10
K07M-10 M7	11.3 A	220/240 V		30.041.173	180	10
K07M-10 B7	11.3 A	24 V		30.040.700	180	10
K07MF-10 Q7	11.3 A	380/415 V		30.041.313	180	10
K07MF-10 M7	11.3 A	220/240 V		30.041.193	180	10
K07MF-10 B7	11.3 A	24 V		30.041.314	180	10
K07MX-10 Q7	11.3 A	380/415 V		30.041.321	180	10
K07MX-10 M7	11.3 A	220/240 V		30.041.322	180	10
K07MX-10 B7	11.3 A	24 V		30.041.148	180	10
K08M-10 Q7	15.5 A	380/415 V		30.041.326	180	10
K08M-10 M7	15.5 A	220/240 V		30.041.327	180	10
K08M-10 B7	15.5 A	24 V		30.041.328	180	10
K07M-10/Sp4 Q7	11.3 A	380/415 V		30.041.273	180	10
K07M-10/Sp4 M7	11.3 A	220/240 V		30.041.146	180	10
K07M-10/Sp4 B7	11.3 A	24 V		30.041.045	180	10
K07M-22/Sp4 Q7	10 A	380/415 V		30.041.307	180	10
K07M-22/Sp4 M7	10 A	220/240 V		30.041.176	180	10
K07M-22/Sp4 B7	10 A	24 V		30.041.076	180	10
K07M-04/Sp4 Q7	11.3 A	380/415 V		30.041.241	180	10
K07M-04/Sp4 M7	11.3 A	220/240 V		30.041.177	180	10
K07M-04/Sp4 B7	11.3 A	24 V		30.041.060	180	10
K07M-01/Sp4 Q7	11.3 A	380/415 V		30.041.223	180	10
K07M-01/Sp4 M7	11.3 A	220/240 V		30.041.175	180	10
K07M-01/Sp4 B7	11.3 A	24 V		30.041.308	180	10
K07MF-22 Q7	10 A	380/415 V		30.041.309	180	10
K07MF-22 M7	10 A	220/240 V		30.041.310	180	10
K07MF-22 B7	10 A	24 V		30.041.311	180	10
K07MX-22 Q7	10 A	380/415 V		30.041.315	180	10
K07MX-22 M7	10 A	220/240 V		30.041.316	180	10
K07MX-22 B7	10 A	24 V		30.041.317	180	10

TAGS IN TITLE:

M - motor contactor
C - contactor relay
Sp4 - version with all four main contacts
F - contactor for fast-on connection
X - contactor with soldering pins

MOTOR CONTACTORS

AC-3 acc. to IEC/EN 60947-4-1 (4-pole, 45 mm widths)

DC

Type	Rated current I_e	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
K07MG-01 Q7	11.3 A	220 V		30.040.098	220	10
K07MG-01 M7	11.3 A	48 V		30.040.097	220	10
K07MG-01 B7	11.3 A	24 V		30.040.095	220	10
K07MGX-01 Q7	11.3 A	220 V	A1 1 3 5 21 / A2 2 4 6 22	30.041.344	220	10
K07MGX-01 M7	11.3 A	48 V		30.041.345	220	10
K07MGX-01 B7	11.3 A	24 V		30.041.069	220	10
K08MG-01 Q7	15.5 A	220 V		30.041.347	220	10
K08MG-01 M7	15.5 A	48 V		30.041.348	220	10
K08MG-01 B7	15.5 A	24 V		30.041.349	220	10
K07MG-10 Q7	11.3 A	220 V		30.040.094	220	10
K07MG-10 M7	11.3 A	48 V		30.040.093	220	10
K07MG-10 B7	11.3 A	24 V		30.040.091	220	10
K07MGX-10 Q7	11.3 A	220 V	A1 1 3 5 13 / A2 2 4 6 14	30.040.092	220	10
K07MGX-10 M7	11.3 A	48 V		30.041.346	220	10
K07MGX-10 B7	11.3 A	24 V		30.041.090	220	10
K08MG-10 Q7	15.5 A	220 V		30.041.350	220	10
K08MG-10 M7	15.5 A	48 V		30.041.351	220	10
K08MG-10 B7	15.5 A	24 V		30.041.352	220	10
K07MG-10/Sp4 Q7	11.3 A	220 V	A1 1 3 5 7 / A2 2 4 6 8	30.041.068	220	10
K07MG-10/Sp4 M7	11.3 A	48 V		30.041.287	220	10
K07MG-10/Sp4 B7	11.3 A	24 V		30.040.703	220	10
K07MG-22/Sp4 Q7	10 A	220 V	A1 1 R3 R5 7 / A2 2 R4 R6 8	30.041.243	220	10
K07MG-22/Sp4 M7	10 A	48 V		30.041.339	220	10
K07MG-22/Sp4 B7	10 A	24 V		30.041.105	220	10
K07MG-04/Sp4 Q7	11.3 A	220 V	A1 R1 R3 R5 R7 / A2 R2 R4 R6 R8	30.041.340	220	10
K07MG-04/Sp4 M7	11.3 A	48 V		30.041.341	220	10
K07MG-04/Sp4 B7	11.3 A	24 V		30.041.140	220	10
K07MG-01/Sp4 Q7	11.3 A	220 V	A1 1 3 5 R7 / A2 2 4 6 R8	30.041.070	220	10
K07MG-01/Sp4 M7	11.3 A	48 V		30.041.342	220	10
K07MG-01/Sp4 B7	11.3 A	24 V		30.041.343	220	10

TAGS IN TITLE:

M - motor contactor
C - contactor relay
Sp4 - version with all four main contacts
F - contactor for fast-on connection
X - contactor with soldering pins
G - DC contactor

SNAP-ON AUXILIARY SWITCH BLOCKS

AC-15 acc. to IEC/EN 60947-5-1 (2-pole)

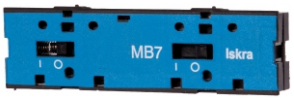
Type	Rated current I_e	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
ND2C-20	6 A		38.421.982	20	60
ND2C-02	6 A		38.421.984	20	60
ND2C-11	6 A		38.421.983	20	60
ND2M-20	6 A		38.423.465	20	60
ND2M-02	6 A		38.421.981	20	60
ND2M-11	6 A		38.421.980	20	60

AC-15 acc. to IEC/EN 60947-5-1 (4-pole)

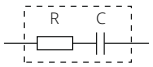
Type	Rated current I_e	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
ND4C-40	6 A		38.421.975	36	40
ND4C-04	6 A		38.421.979	36	40
ND4C-31	6 A		38.421.976	36	40
ND4C-13	6 A		38.421.978	36	40
ND4C-22	6 A		38.421.977	36	40
ND4M-40	6 A		38.423.466	36	40
ND4M-04	6 A		38.423.467	36	40
ND4M-31	6 A		38.421.972	36	40
ND4M-13	6 A		38.421.974	36	40
ND4M-22	6 A		38.421.973	36	40

Mechanical interlock

Type	Ordering No.	Weight (g)	Packaging (pcs)
MB7	38.422.210	12	10



RC suppressor

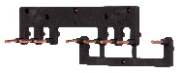
Type	Control voltage U_c	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
RC1-K0X	12 - 48 V		30.017.070	16	10
RC2-K0X	48 - 250 V		30.017.071	16	10
RC3-K0X	250 - 380 V		30.017.072	16	10
RC4-K0X	380 - 600 V		30.017.073	16	10

DI suppressor (for DC contactors)

Type	Control voltage U_c	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
DI-K0X	6 - 250 V		30.017.080	16	10

Rigid connecting kits

Type	Discription	Ordering No.	Weight (g)	Packaging (pcs)
WK 1.1	For reversing switch, suitable for contactors: 2.2-5.5 kW (for miniature contactors K03, K07) (max. current 16 A)	655200013000	26	1
WK 1.2	For star-delta starters, suitable for contactors: 2.2-5.5 kW (for miniature contactors K03, K07) (max. current 16 A), 5 terminals in line (3 main terminals, 1 auxiliary terminal, 1 coil terminal)	655200017000	18	1



BR6 THERMAL OVERLOAD RELAY

up to 14 A for K07 contactors

Type	Setting range (A)	Max. backup fuse for Coordination 1 (A)	Max. backup fuse for Coordination 2 (A)	Ordering No.	Weight (g)	Packaging (pcs)
BR6-0.16	0.11 ... 0.16	20	0.5	30.115.002	80	1
BR6-0.25	0.16 ... 0.25	20	1	30.115.003	80	1
BR6-0.4	0.25 ... 0.4	20	2	30.115.004	80	1
BR6-0.6	0.4 ... 0.6	20	2	30.115.005	80	1
BR6-0.9	0.6 ... 0.9	20	4	30.115.006	80	1
BR6-1.3	0.9 ... 1.3	20	4	30.115.007	80	1
BR6-1.9	1.3 ... 1.9	20	6	30.115.008	80	1
BR6-2.8	1.9 ... 2.8	20	6	30.115.013	80	1
BR6-4	2.8 ... 4	20	10	30.115.009	80	1
BR6-6	4 ... 6	20	10	30.115.010	80	1
BR6-9	6 ... 9	20	16	30.115.011	80	1
BR6-11	8 ... 11	25	20	30.115.014	80	1
BR6-14	11 ... 14	35	25	30.115.012	80	1
BR6-15.5	13 ... 15.5	35	25	30.115.019	80	1

DESCRIPTION OF THE OPERATING MEANS:

- **OFF:** NC contact 95-96 is opened while the pushbutton is pressed and held.
- **RESET:** both contacts (NO and NC) return to the normal position (contact 95-96 closes and 97-98 opens). Automatic (A) or manual (H) operation.
- **TEST:** both contacts (NO and NC) change state from the normal state (contact 95-96 opens, contact 97-98 closes) until RESET push-button is pressed (manual mode) or the TEST lever is held (automatic mode).

ORDERING DATA

Standard control voltages and designations (AC)

V (50/60 Hz)	24	42	48	110/125	220/240	380/415	440	500
Designations	B7	D7	E7	F7	M7	Q7	R7	S7

Standard control voltages and designations (DC)

V	12	24	48	60	72	110	125	220
Designations	JD	BD	ED	ND	SD	FD	GD	MD

K07M – 01 – M7

- M7 – Control voltage
- 01 – Version of contacts
- K07M – Type

NOTE:

The type designation and control voltage are stated when oredring the contactors. When ordering snap-on auxiliary switch blocks, only the type is stated.

EXAMPLE: **ND4M-22**

	Type	Symbol	Unit	K03M	K07M K07MF K07MX	K07MG K07MGF K07MGX	K08MG	K08M
GENERAL	Standards				IEC/EN 60947-5-1, IEC 60947-4-1, UL 508			
	Approvals				CE, UL, CSA, EAC		CE, EAC	
	Module width		mm	35	45			
	Number of poles				4			
	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							
	(40 ... 55) °C					no limitation		
	Noise level (operation)		dB	30	30	20	20	30
	Maximum operating frequency with no load		op. c./h			3.000		
	Mechanical endurance		op. c.			10.000.000		
	Weight		g	160	170	215	215	170
MAIN CIRCUIT	Contact reliability					≥17 V; ≥50 mA		
	Power dissipation per pole		W			1.2		
	Overload current withstand capability - 10 s			68	90.4	90.4	124	124
	Maximum back-up fuse for short-circuit protection gL and gG:							
	coordination type 2		A			25		
	Rated insulation voltage	U_i	V			690		
	Rated impulse withstand voltage	U_{imp}	kV			6		
	Rated operational voltage	U_e	V			690		
	Rated frequency	f	Hz			50/60		
	Thermal current	I_{th}	A			20		
	Rated operational current for AC-1, AC-7a and AC-21	I_e	A			20		
	Operational power for AC-1, AC-7a and AC-21:							
	single-phase 230 V	P_e	kW			4.4		
	three-phase 230 V					7.5		
	three-phase 400 V					13		
	three-phase 500 V					17.5		
	three-phase 690 V					22		
	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	8.5	11.3	11.3	15.5 (11.3*)	15.5 (11.3*)
	Operational power for AC-3, AC-3e, AC-7b and AC-23:							
	single-phase 230 V	P_e	kW	0.75	1.1	1.1	1.1	1.1
	three-phase 230 V			2	3	3	3.7 (3*)	3.7 (3*)
	three-phase 400 V			4	5.5	5.5	7.5 (5.5*)	7.5 (5.5*)
	three-phase 500 V			4	5.5	5.5	5.5	5.5
	three-phase 690 V			4	5.5	5.5	5.5	5.5
	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.			1.000.000		
	Rated operational current for AC-4 (at 400 V)	I_e	A	/	5	5	5	5
	Operational power for AC-4:							
	three-phase 230 V	P_e	kW	/	0.75	0.75	0.75	0.75
	three-phase 400 V			/	2.2	2.2	2.2	2.2
	three-phase 500 V			/	1.5	1.5	1.5	1.5
	three-phase 690 V			/	1.5	1.5	1.5	1.5
	Maximum operating frequency for AC-4		op. c./h			300		
	Electrical endurance for AC-4		op. c.			100.000		
	Rated motor power according to standards UL and CSA:							
	single-phase 115 V	P_e	HP	1/3	1/2	1/2	1/2	1/2
	single-phase 230 V			3/4	1.5	1.5	1.5	1.5
	three-phase 230 V			2	3	3	3	3
	three-phase 460 V			3	5	5	5	5
	three-phase 575 V			5	7.5	7.5	7.5	7.5

* It applies for AC-3e

	Type	Symbol	Unit	K03M	K07M K07MF K07MX	K07MG K07MGF K07MGX	K08MG	K08M
MAIN CIRCUIT	Switching of capacitors AC-6b and AC-7c (at 230 V)	C	µF			30		
	Maximum operating frequency for AC-6b and AC-7c		op. c./h			600		
	Electrical endurance for AC-6b and AC7c		op. c.			100.000		
	Terminal capacity:							
	rigid (solid and stranded)	S	mm^2			0.75 ... 2.5		
	flexible					0.5 ... 2.5		
	Length of removed wire insulation		mm			10		
	Screw					M3.5		
	Screw head					PZ2		
	Tightening torque		Nm			1.2		
AUXILIARY CIRCUIT	Power dissipation per pole		W			1.2		
	Maximum back-up fuse for short-circuit protection gL and gG: coordination type 2					20		
	Rated insulation voltage	U_i	V			690		
	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		
	Rated operational current for DC-13:							
	1 pole ... 24 V DC/110 V DC		A			4 / 0.25		
	Maximum operating frequency for DC-13		op. c./h			1.200		
	Terminal capacity:							
	rigid (solid and stranded)	S	mm^2			0.75 ... 2.5		
	flexible					0.5 ... 2.5		
	Length of removed wire insulation		mm			10		
	Screw					M3.5		
	Screw head					PZ2		
	Tightening torque		Nm			1.2		
COIL	Range of control voltage for switch-on	U_c	%			85 ... 110		
	Range of control voltage for drop out	U_c	%	20 ... 75		10 ... 75	10 ... 75	20 ... 75
	Kind of voltage			AC		DC	DC	AC
	Standard control voltages	U_c	V	1)	2)	3)	3)	2)
	Frequency of AC control voltage	f	Hz	50/60		/	/	50/60
	Control mode					remote control with U_c		
	Coil consumption:							
	switch-on		VA/W	39/34		/	/	39/34
	operation			8.1/4		3	3	8.1/4
	Delays:							
	make		ms	10 ... 15	10 ... 15	25 ... 30	25 ... 30	10 ... 15
	brake			6 ... 15	5 ... 10	10 ... 25	10 ... 25	5 ... 10
	Terminal capacity:							
	rigid (solid and stranded)		mm^2			0.75 ... 2.5		
	flexible					0.5 ... 2.5		
	Length of removed wire insulation		mm			10		
	Screw					M3.5		
	Screw head					PZ2		
	Tightening torque		Nm			1.2		
SAFETY	MTTF - Mean time to failure $MTTF = 1/\lambda = B10/(0.1\ n_{op})$	AC-1 AC-3	h			5.000 25.000		
	$MTTF_d$ - Mean time to failure dangerous $MTTFd = 1/\lambda_d = B10_d/(0.1\ n_{op})$	AC-1 AC-3	h			6.666 33.333		
	B10 - Number of operating cycles until 10 % of devices fail	AC-1 AC-3	op. c.			150.000 750.000		
	$B10_d$ - Number of operating cycles until 10 % of device dangerous $B10_d$ = B10/ratio of dangerous failures	AC-1 AC-3	op. c.			200.000 1.000.000		
	λ - Failure rate $\lambda = (0.1\ n_{op})/B10$	AC-1 AC-3	1/h			0.0002 0.00004		
	λ_d - Failure rate dangerous $\lambda_d = (0.1\ n_{op})/B10_d$	AC-1 AC-3	1/h			0.00015 0.00003		
	Ratio of dangerous failures		%			75		
	n_{op} - Operating cycles (operating cycles/h)		op. c./h			300		

1) 6,12,24,42,48,110/125,220/240,380/415,440/460,550 V **2)** 6,12,24,42,48,110/125,220/240,380/415,440/460,500,690 V **3)** 6,12,24,48,60,72,110,125,220,250 V

	Type	Symbol	Unit	K03C	K07C K07CF K07CX	K07CG K07CGF K07CGX
GENERAL	Standards				IEC/EN 60947-5-1, UL 508	
	Approvals				CE, UL, CSA, EAC	
	Module width		mm	35	45	
	Number of poles				4	
	Degree of protection				IP20	
	Pollution degree				3	
	Climatic conditions				95 % relative humidity	
	Ambient temperature: open closed		°C		-20 ... +60 -20 ... +45	
	Storage temperature		°C		-30 ... +80	
	Maximum altitude U_i and U_e is reduced for 1.2 % and I_e for 0.4 % for every additional 100 m		m		2000	
	Number of contactors or switches side-by-side: ≤40 °C (40 ... 55) °C				no limitation	
	Noise level (operation)		dB	30	30	20
	Maximum operating frequency with no load		op. c./h		3.000	
	Mechanical endurance		op. c.		10.000.000	
	Weight		g	160	170	215
MAIN CIRCUIT	Contact reliability				≥17 V; ≥50 mA	
	Maximum back-up fuse for short-circuit protection gL and gG: coordination type 2		A		25	
	Rated insulation voltage	U_i	V		690	
	Rated impulse withstand voltage	U_{imp}	kV		6	
	Rated operational voltage	U_e	V		690	
	Rated frequency	f	Hz		50/60	
	Thermal current	I_{th}	A		20	
	Rated operational current for AC-1, AC-7a and AC-21	I_e	A		20	
	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	
	Rated operational current for DC-13: 1 pole ... 24 V DC/110 V DC		A		4 / 0.25	
	Maximum operating frequency for DC-13		op. c./h		1.200	
	Terminal capacity: rigid (solid and stranded) flexible	S	mm^2		 0.75 ... 2.5 0.5 ... 2.5	
	Length of removed wire insulation		mm		10	
	Screw				M3.5	
	Screw head				PZ2	
	Tightening torque		Nm		1.2	
COIL	Range of control voltage for switch-on	U_c	%		85 ... 110	
	Range of control voltage for drop out	U_c	%		20 ... 75	10 ... 75
	Kind of voltage				AC	DC
	Standard control voltages	U_c	V	1)	2)	3)
	Frequency of AC control voltage	f	Hz		50/60	/
	Control mode				remote control with U_c	
	Coil consumption: switch-on operation		VA/W		 39/34 8.1/4	 - / 3 - / 3
	Delays: make brake		ms	 10 ... 15 6 ... 15	 10 ... 15 5 ... 10	 25 ... 30 10 ... 25
	Terminal capacity: rigid (solid and stranded) flexible		mm^2		 0.75 ... 2.5 0.5 ... 2.5	
	Length of removed wire insulation		mm		10	
	Screw				M3.5	
	Screw head				PZ2	
	Tightening torque		Nm		1.2	

1) 6,12,24,42,48,110/125,220/240,380/415,440/460,550 V **2)** 6,12,24,42,48,110/125,220/240,380/415,440/460,500,690 V **3)** 6,12,24,48,60,72,110,125,220,250 V

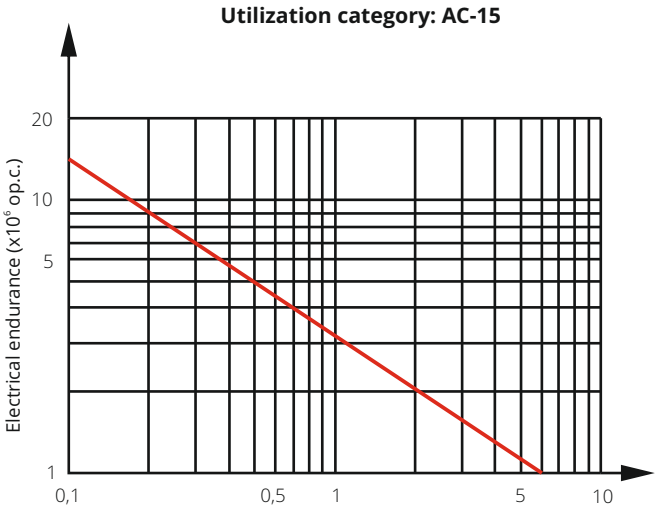
K03C, K07C, K07CF, K07CX, K07CG, K07CGF, K07CGX

	Type	Symbol	Unit	K03C	K07C K07CF K07CX	K07CG K07CGF K07CGX
SAFETY	MTTF - Mean time to failure MTTF = 1/λ = B10/(0.1 n_{op})	AC-15 DC-13	h		12.500 10.000	
	$MTTF_d$ - Mean time to failure dangerous MTTFd = 1/λ_d = $B10_d$/(0.1 n_{op})	AC-15 DC-13	h		16.666 13.333	
	B10 - Number of operating cycles until 10 % of devices fail	AC-15 DC-13	op. c.		750.000 600.000	
	$B10_d$ - Number of operating cycles until 10 % of device dangerous $B10_d$ = B10/ratio of dangerous failures	AC-15 DC-13	op. c.		1.000.000 800.000	
	λ - Failure rate λ = (0.1 n_{op})/B10	AC-15 DC-13	1/h		0.00008 0.0001	
	λ_d - Failure rate dangerous λ_d = (0.1 n_{op})/$B10_d$	AC-15 DC-13	1/h		0.00006 0.000075	
	Ratio of dangerous failures		%		75	
	n_{op} - Operating cycles (operating cycles/h)		op. c./h		600	

K03M, K07M, K07MF, K07MX, K07MG, K07MGF, K07MGX, K08M, K08MG

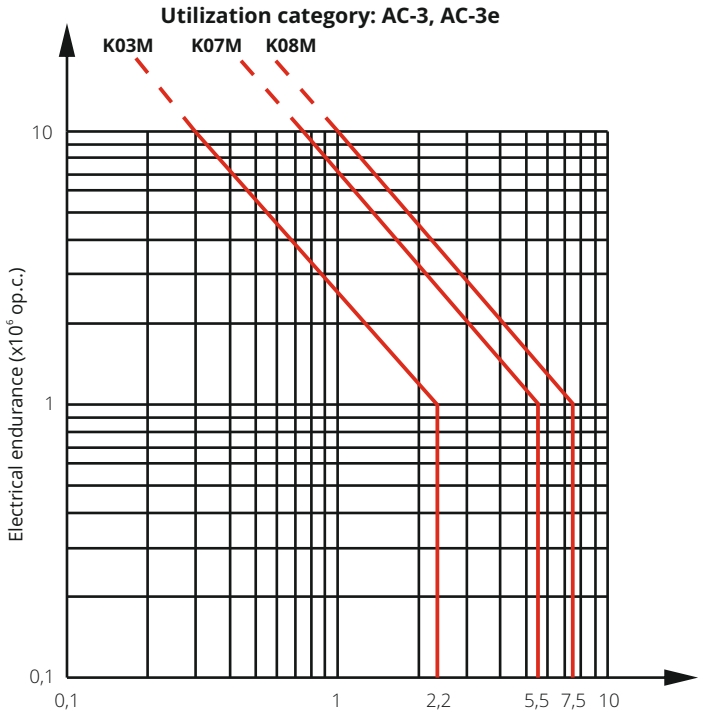
Electrical endurance

Diagram 1
Electrical endurance of contactor relays and auxiliary contacts of motor contactors



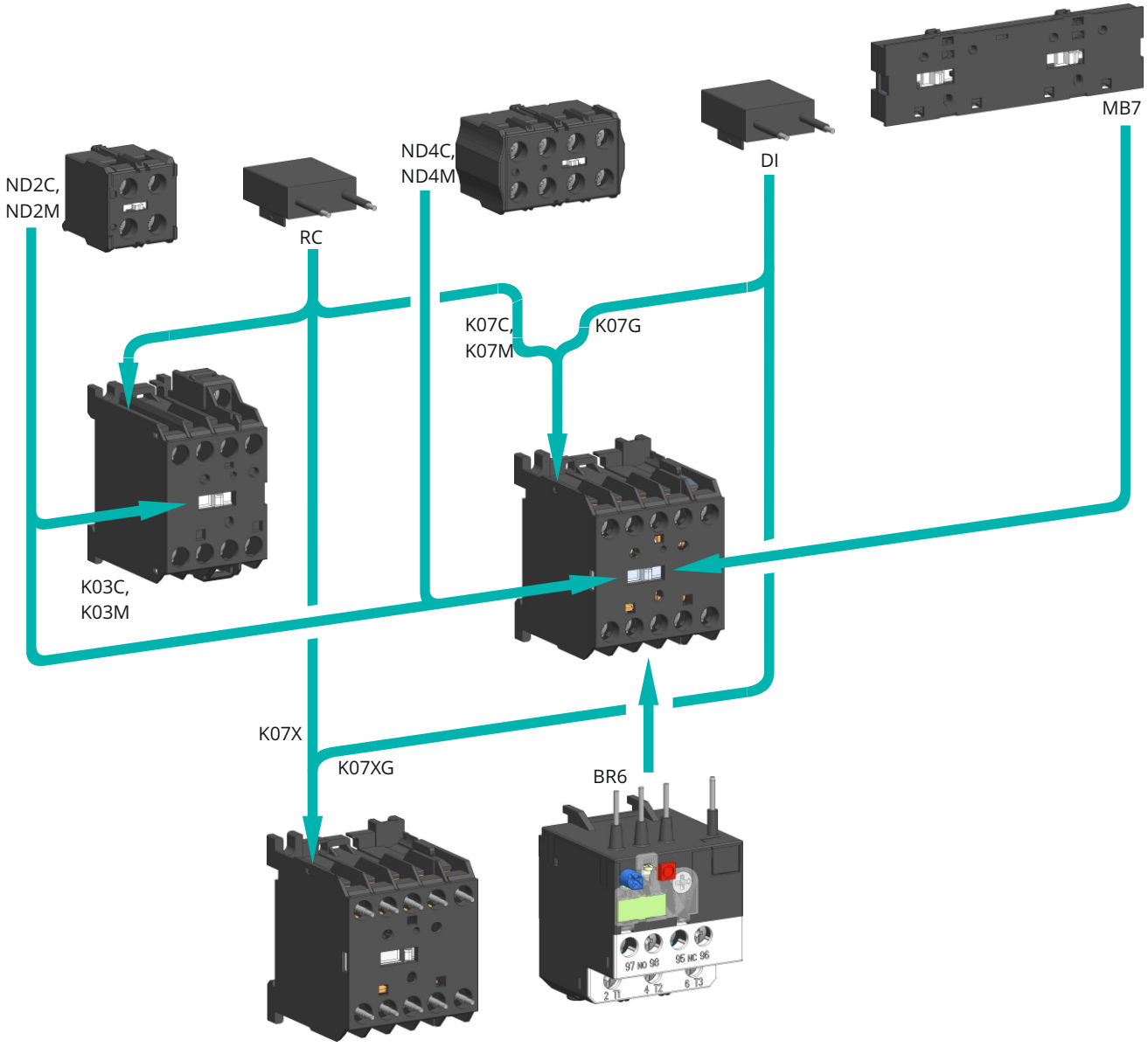
AC-15 Breaking current I_e (A) at 230 V
Operation frequency: 1200 op.c./h

Diagram 2
Electrical endurance of main contacts of motor contactors



AC-3 Motor rated power (kW) at 400 V, 50 Hz
Operation frequency: 600 op.c./h

Mounting positions of accessories



Snap-on auxiliary switch blocks

	Type	Symbol	Unit	ND2C ND2M	ND4C ND4M
GENERAL	Standards			IEC/EN 60947-5-1, VDE 0660, UL 508	
	Approvals			CE, UL, CSA	
	Module width			1	2
	Number of poles			2	4
	Degree of protection			IP20	
	Pollution degree			3	
	Maximum altitude U_i and U_e is reduced for 1.2 % and I_e for 0.4 % for every additional 100 m		m	2000	
	Maximum operating frequency with no load		op. c./h	3000	
	Mechanical endurance		op. c.	10.000.000	
	Weight		g	20	40
AUXILIARY CIRCUIT	Contact reliability			≥17 V; ≥50 mA	
	Maximum back-up fuse for short-circuit protection gL and gG: coordination type 2		A	20	
	Rated insulation voltage	U_i	V	690	
	Rated impulse withstand voltage	U_{imp}	kV	6	
	Rated operational voltage	U_e	V	690	
	Rated frequency	f	Hz	50 /60	
	Thermal current	I_{th}	A	20	
	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.	500.000	
	Switching of auxiliary loads acc. to standard UL and CSA			A600, R300	
	Rated operational current for DC-13: 1 pole ... 24 V DC / 110 V DC		A	3 / 0.15	
	Maximum operating frequency for DC-13		op. c./h	1.200	
	Electrical endurance for DC-13		op. c.	500.000	
	Terminal capacity: rigid (solid and stranded) flexible	S	mm^2	 0.75 ... 2.5 0.5 ... 2.5	
	Length of removed wire insulation		mm	10	
	Screw			M3.5	
	Screw head			PZ2	
	Tightening torque		Nm	1.2	

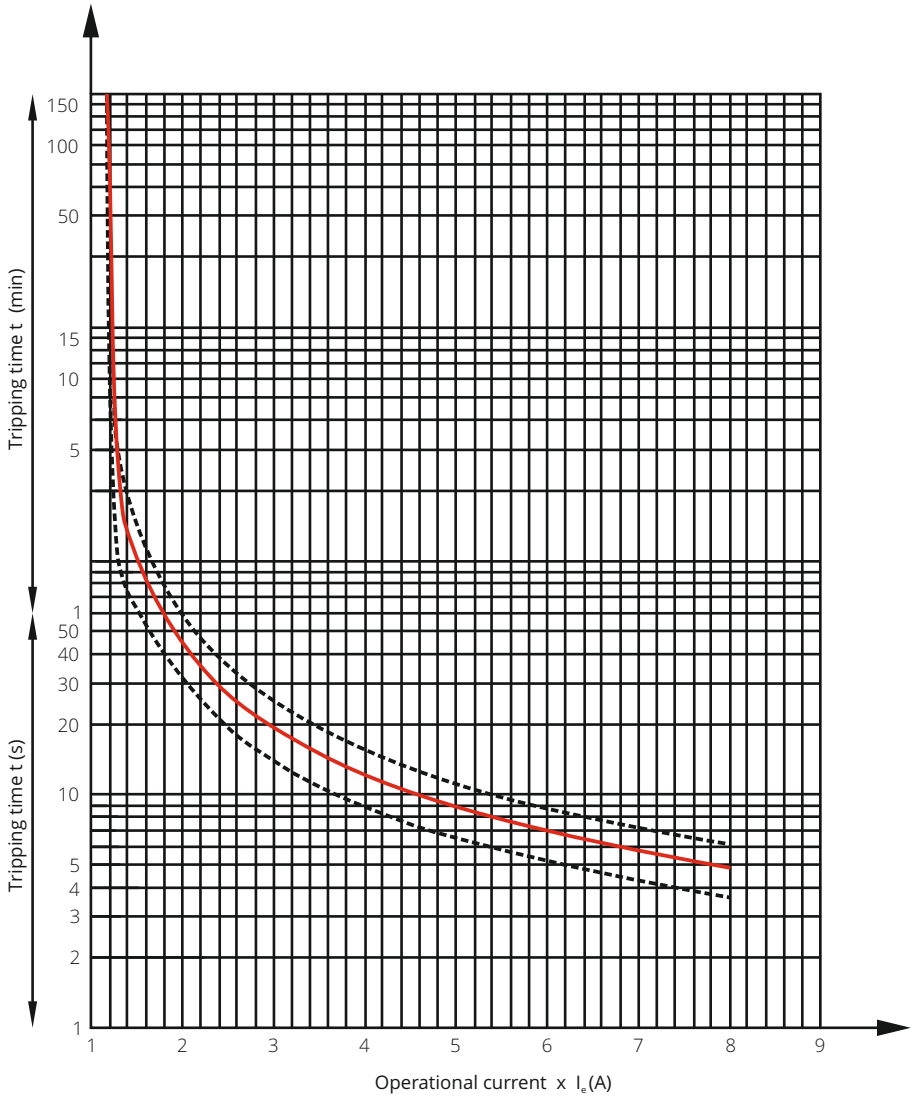
BR6 Thermal overload relay

	Type		Symbol	Unit	BR6
GENERAL	Standards				IEC 60947-4-1, IEC 60947-5-1, UL508
	Approvals				CE
	For use with				K07
	Degree of protection				IP20
	Ambient temperature				
	operating			°C	-25 ... +50
	storage				-25 ... +70
	Dimensions (WxHxD)			mm	44.8 x 70.6 x 50.6
	Operating position				vertical
	Reset type				auto, manual
	Maximum altitude above sea level			m	2000
	Weight			g	80
MAIN CIRCUIT	Rated insulation voltage		U_i	V	690
	Rated impulse withstand voltage		U_{imp}	kV	6
	Rated operational voltage		U_e	V	690
	Adjustable current		I_r	A	0.1 ... 14
	Rated frequency		f	Hz	0 ... 400
	Overvoltage category / pollution degree acc. to IEC/EN 60947-1				III / 3
	Trip class acc. to IEC/EN 60947-4-1				10
	Temperature compensation range			°C	-5 ... +40
	Sensitivity to phase failure				yes
	Power loss at I_n		P	W	6
	Terminal capacity			mm^2	0.75 ... 2.5
	Conductor insulation stripping length			mm	9
	Screw				M3.5
	Screw head				PZ2
	Tightening torque			Nm	1.2
AUXILIARY CIRCUITS	Rated insulation voltage		U_i	V	690
	Rated impulse withstand voltage		U_{imp}	kV	6
	Rated operational voltage		U_e	V	AC: 500 ; DC: 230
	Overvoltage category / pollution degree acc. to IEC/EN 60947-1				III / 3
	Thermal current (both contacts)		I_{th}	A	6
	Contact electrical rating				C600 / P600
	Rated operational current AC-15				
	220/240 V	NO	I_e	A	0.5
	380/415 V	NO	I_e	A	0.5
	500 V	NO	I_e	A	0.3
	220/240 V	NC	I_e	A	1.5
	380/415 V	NC	I_e	A	0.7
	500 V	NC	I_e	A	0.5
	Rated operational current DC-13				
	220/240 V	both contacts	I_e	A	1.5
	380/415 V	both contacts	I_e	A	0.7
	500 V	both contacts	I_e	A	0.5
	Terminal capacity			mm^2	0.75 ... 2.5
	Conductor insulation stripping length			mm	9
	Screw				M3.5
	Screw head				PZ2
	Tightening torque			Nm	1

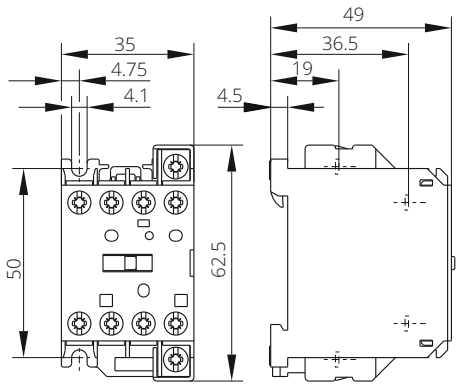
Setting ranges and maximum permitted back-up fuses

Seting range (A)	Max. back-up fuse gL/gG – for coordination 1 (A)	Max. back-up fuse gL/gG – for coordination 2 (A)
0.11 - 0.16	20	0.5
0.16 - 0.25	20	1
0.25 - 0.4	20	2
0.4 - 0.6	20	2
0.6 - 0.9	20	4
0.9 - 1.3	20	4
1.3 - 1.9	20	6
1.9- 2.8	20	6
2.8 - 4	20	10
4 - 6	20	10
6 - 9	20	16
8 - 11	25	20
11 - 14	35	25
13 - 15.5	35	25

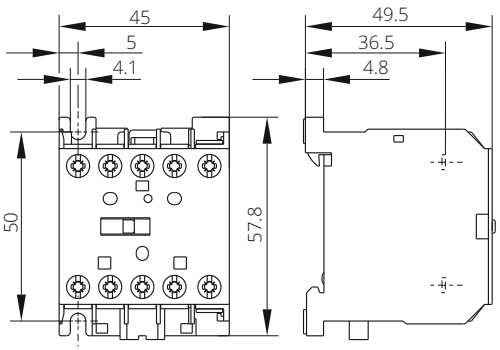
Tripping curve BR6



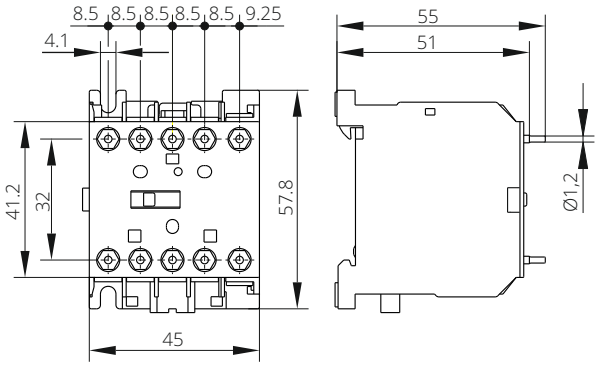
K03C, K03M, K03MX



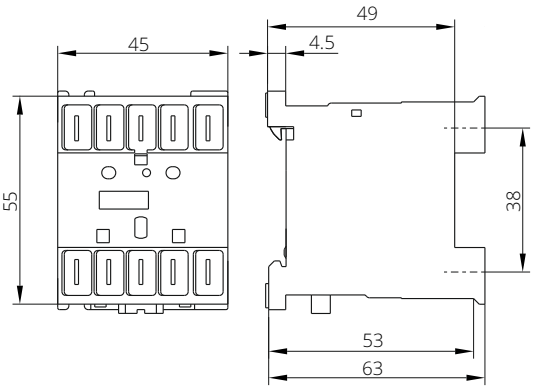
K07C, K07M, K08M, K07CG, K07MG, K08MG



K07CX, K07CGX, K07MX, K07MGX

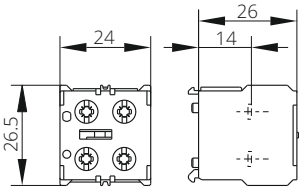


K07CF, K07MF, K07MGF, K07CGF



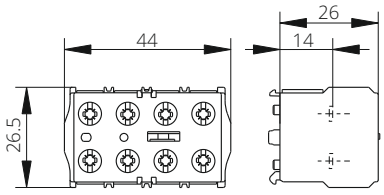
ND2

Two pole snap-on auxiliary switch blocks

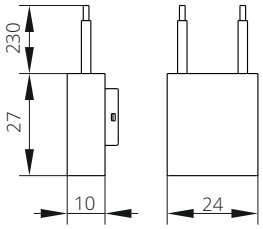


ND4

Four pole snap-on auxiliary switch blocks

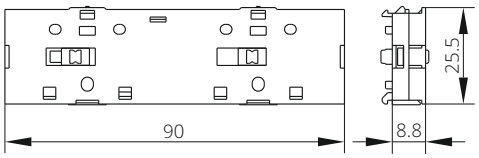


RC, DI suppressor

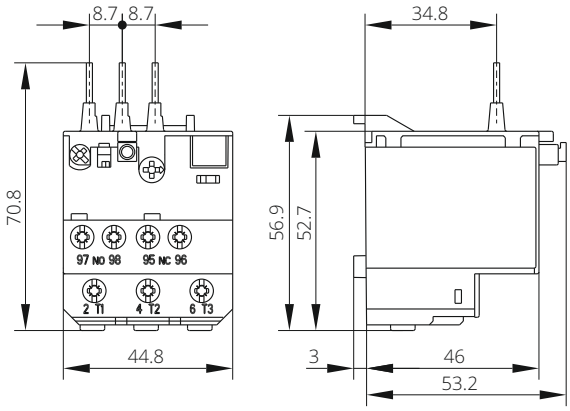


MB7

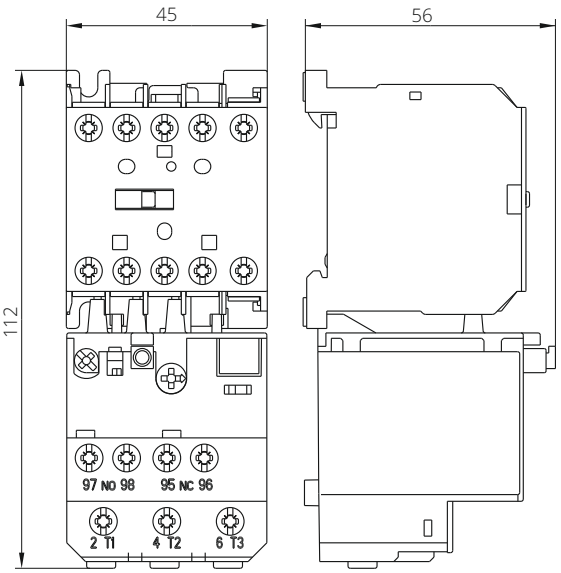
Mechanical interlock



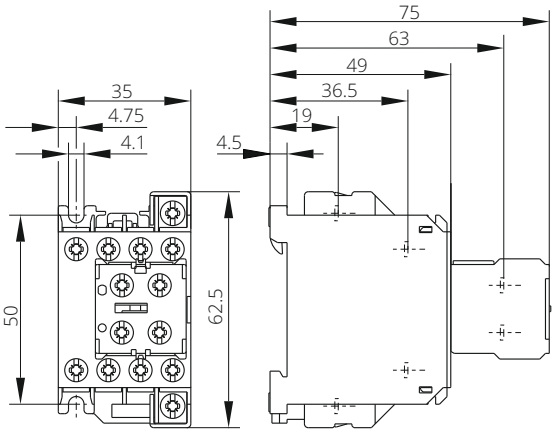
BR6
Thermal overload relay



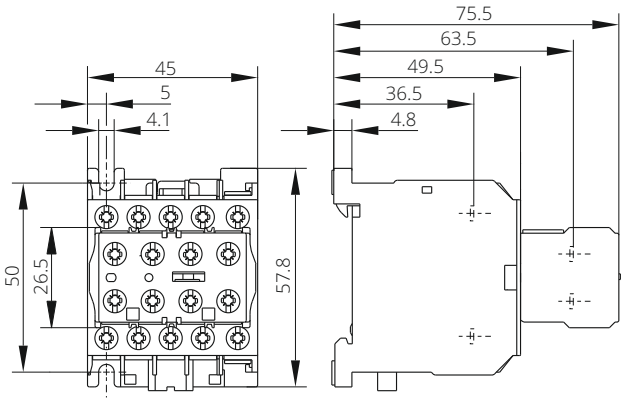
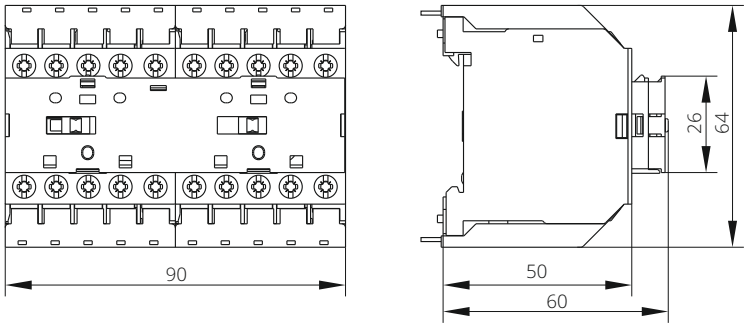
BR6 + K07x
BR6 + K08x



K03x + ND2



K07x + ND4
K08x + ND4



K07x + MB7 + LB7
K08x + MB7 + LB7