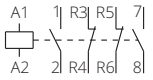
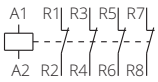
INSTALLATION CONTACTORS - UL/CSA

FROM 20 A UP TO 63 A

General Use acc. to UL 60947-4-1 (4-pole, 3 modules)

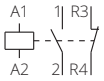
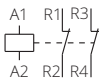
63 A AC

Type	Rated current I_e	Control voltage at 50/60 Hz	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
IKA440-22	40 A	230 V		30.045.705	350	5
IKA440-22	40 A	120 V		30.045.624	350	
IKA440-22	40 A	24 V		30.045.625	350	
IKA463-22	63 A	230 V		30.045.706	350	
IKA463-22	63 A	120 V		30.045.626	350	
IKA463-22	63 A	24 V		30.045.627	350	
IKA440-04	40 A	230 V		30.045.707	350	5
IKA440-04	40 A	120 V		30.045.628	350	
IKA440-04	40 A	24 V		30.045.629	350	
IKA463-04	63 A	230 V		30.045.708	350	
IKA463-04	63 A	120 V		30.045.630	350	
IKA463-04	63 A	24 V		30.045.631	350	

General Use acc. to UL 60947-4-1 (2-pole, 1 module)

20 A AC/DC

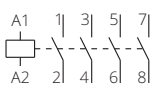
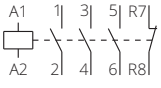
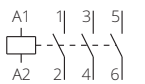
HUM-FREE

Type	Rated current I_e	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
IKD220-20	20 A	230 V AC 220 V DC		30.046.826	130	6
IKD220-20	20 A	120 V AC 110 V DC		30.047.044	130	
IKD220-20	20 A	24 V AC/DC		30.047.045	130	
IKD220-11	20 A	230 V AC 220 V DC		30.047.297	130	6
IKD220-11	20 A	120 V AC 110 V DC		30.047.046	130	
IKD220-11	20 A	24 V AC/DC		30.047.047	130	
IKD220-10	20 A	230 V AC 220 V DC		30.047.298	125	6
IKD220-10	20 A	120 V AC 110 V DC		30.047.048	125	
IKD220-10	20 A	24 V AC/DC		30.047.049	125	
IKD220-01	20 A	230 V AC 220 V DC		30.047.299	125	6
IKD220-01	20 A	120 V AC 110 V DC		30.047.050	125	
IKD220-01	20 A	24 V AC/DC		30.047.051	125	
IKD220-02	20 A	230 V AC 220 V DC		30.047.300	130	6
IKD220-02	20 A	120 V AC 110 V DC		30.047.052	130	
IKD220-02	20 A	24 V AC/DC		30.047.053	130	

General Use acc. to UL 60947-4-1 (4-pole, 2 modules)

25 A AC/DC

HUM-FREE

Type	Rated current I_e	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
IKD425-40	25 A	230 V AC 220 V DC		30.046.828	250	6
IKD425-40	25 A	120 V AC 110 V DC		30.047.054	250	
IKD425-40	25 A	24 V AC/DC		30.047.055	250	
IKD425-31	25 A	230 V AC 220 V DC		30.047.301	250	6
IKD425-31	25 A	120 V AC 110 V DC		30.047.056	250	
IKD425-31	25 A	24 V AC/DC		30.047.057	250	
IKD425-30	25 A	230 V AC 220 V DC		30.047.302	245	6
IKD425-30	25 A	120 V AC 110 V DC		30.047.058	245	
IKD425-30	25 A	24 V AC/DC		30.047.059	245	

Other control voltages are on request - define type and voltage

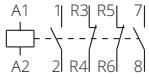
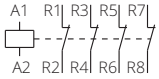
INSTALLATION CONTACTORS - UL/CSA

FROM 20 A UP TO 63 A

General Use acc. to UL 60947-4-1 (4-pole, 2 modules)

25 A AC/DC

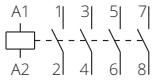
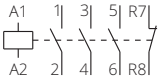
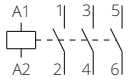
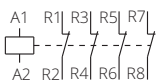
HUM-FREE

Type	Rated current I_e	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
IKD425-22	25 A	230 V AC 220 V DC		30.047.303	250	6
IKD425-22	25 A	120 V AC 110 V DC		30.047.060	250	
IKD425-22	25 A	24 V AC/DC		30.047.061	250	
IKD425-04	25 A	230 V AC 220 V DC		30.047.304	250	6
IKD425-04	25 A	120 V AC 110 V DC		30.047.062	250	
IKD425-04	25 A	24 V AC/DC		30.047.063	250	

General Use acc. to UL 60947-4-1 (4-pole, 3 modules)

63 A AC/DC

HUM-FREE

Type	Rated current I_e	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
IKD440-40	40 A	230 V AC 220 V DC		30.045.709	420	5
IKD440-40	40 A	120 V AC 110 V DC		30.045.632	420	
IKD440-40	40 A	24 V AC/DC		30.045.633	420	
IKD463-40	63 A	230 V AC 220 V DC		30.045.593	420	
IKD463-40	63 A	120 V AC 110 V DC		30.045.634	420	
IKD463-40	63 A	24 V AC/DC		30.045.635	420	
IKD440-31	40 A	230 V AC 220 V DC		30.045.710	420	5
IKD440-31	40 A	120 V AC 110 V DC		30.045.636	420	
IKD440-31	40 A	24 V AC/DC		30.045.637	420	
IKD463-31	63 A	230 V AC 220 V DC		30.045.711	420	
IKD463-31	63 A	120 V AC 110 V DC		30.045.638	420	
IKD463-31	63 A	24 V AC/DC		30.045.639	420	
IKD440-30	40 A	230 V AC 220 V DC		30.045.712	410	5
IKD440-30	40 A	120 V AC 110 V DC		30.045.640	410	
IKD440-30	40 A	24 V AC/DC		30.045.641	410	
IKD463-30	63 A	230 V AC 220 V DC		30.045.713	410	
IKD463-30	63 A	120 V AC 110 V DC		30.045.642	410	
IKD463-30	63 A	24 V AC/DC		30.045.643	410	
IKD440-22	40 A	230 V AC 220 V DC		30.045.714	420	5
IKD440-22	40 A	120 V AC 110 V DC		30.045.644	420	
IKD440-22	40 A	24 V AC/DC		30.045.645	420	
IKD463-22	63 A	230 V AC 220 V DC		30.045.715	420	
IKD463-22	63 A	120 V AC 110 V DC		30.045.646	420	
IKD463-22	63 A	24 V AC/DC		30.045.647	420	
IKD440-04	40 A	230 V AC 220 V DC		30.045.594	420	5
IKD440-04	40 A	120 V AC 110 V DC		30.045.648	420	
IKD440-04	40 A	24 V AC/DC		30.045.649	420	

Other control voltages are on request - define type and voltage

UP TO 25 A

	Type	Symbol	Unit	IKA220	IKD220	IKA425	IKD425
GENERAL	Standards			UL 60947-4-1A, C22.2 No. 60947-4-1A-07, IEC/EN 61095, IEC/EN 60947-4-1			
	Approvals			CE, UL, CSA			
	Module width			1		2	
	Number of poles			2		4	
	Degree of protection			IP20 (IP40 when installed in installation box - distribution board)			
	Pollution degree			3			
	Ambient temperature (closed)			5 °F ... 104 °F / -5 °C ... +40 °C [1]			
	Storage temperature			-22 °F ... 176 °F / -30 °C ... +80 °C			
	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	20	30	20
	Vibration resistance according to IEC/EN 60068-2-6	a	g	switched off: 2 (Z and X axis) / switched on: 3 (Z axis) and 1 (X axis)			
	Shock resistance according to IEC/EN 6068-2-27	a	g	switched off: 10 (Z and X axis) / switched on: 15 (Z axis) and 2 (X axis)			
	Maximum operating frequency with no load		op. c./h	3.000			
	Mechanical endurance		op. c.	3.000.000	10.000.000	3.000.000	10.000.000
	Weight		g	130	130	230	250
MAIN CIRCUIT	Contact reliability			≥17 V; ≥50 mA			
	Minimum distance of open contacts			0.118 in /3.6 mm			
	Power dissipation per pole		W	1.7	1.7	2	2
	Overload current withstand capability: 10 s		A	72		68	
	Maximum back-up fuse for short-circuit protection gL and gG: coordination type 1 (at prospective current 3 kA) coordination type 2 (at prospective current 3 kA)	I_v	A	20	20	25	25
	Maximum back-up fuse for short-circuit protection KS acc. to UL and CSA	I_v	A	20	20	25	25
	Rated insulation voltage	U_i	V	IEC: 440 ; UL/CSA: 480			
	Rated impulse withstand voltage	U_{imp}	kV	4			
	Rated operational voltage	U_e	V	IEC: 230 ; UL/CSA: 240		IEC: 400 ; UL/CSA: 480	
	Rated frequency	f	Hz	50/60			
	Thermal current	I_{th}	A	20		25	
	Rated operational current for AC-1, AC-7a and AC-21	I_e	A	20		20	
	Operational power for AC-1, AC-7a and AC-21: single-phase 230 V three-phase 230 V three-phase 400 V	P_e	kW	4		5.4 9 16	
	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-2	I_e	A	12		14	
	Operational power for AC-2: single-phase 230 V three-phase 230 V three-phase 400 V	P_e	kW	1.8		2 3.6 6	
	Maximum operating frequency for AC-2		op. c./h	120			
	Electrical endurance for AC-2		op. c.	100.000			
	Rated operational current for AC-22	I_e	A	20		25	
	Operational power for AC-22: single-phase 230 V three-phase 230 V three-phase 400 V	P_e	kW	3.7		4.6 8 13.8	
	Maximum operating frequency for AC-22		op. c./h	300			
	Electrical endurance for AC-22		op. c.	50.000			
	Rated operational current for AC-3, AC-3e, AC-7b and AC-23	I_e	A	NO: 9 / NC: 6		8.5	
	Operational power for AC-3, AC-3e, AC-7b and AC-23: single-phase 230 V three-phase 230 V three-phase 400 V	P_e	kW	NO: 1.3 / NC: 0.75		1.3 2.2 4	
	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.	300.000		500.000	

1) Ambient temperature (open) -13 ... 104 °F / -25 ... +40 °C for version with 2NO and 4NO contacts

UP TO 25 A

	Type	Symbol	Unit	IKA220	IKD220	IKA425	IKD425
MAIN CIRCUIT	Rated motor power acc. to standards UL and CSA:						
	single-phase 120 V	P_e	HP	1/3	1/3	1/3	1/3
	single-phase 208 V			3/4	3/4	3/4	3/4
	single-phase 240 V			1	1	1	1
	three-phase 120 V					1	1
	three-phase 208 V					2	2
	three-phase 240 V					3	3
	three-phase 460 V					5	5
	Maximum operating frequency for motors acc. to UL and CSA		op. c./h	360			
	Electrical endurance for motors according to UL and CSA		op. c.	300.000		500.000	
	General use according to standards UL and CSA:						
	single-phase 240 V	I_e	A	20	20		
	three-phase 480 V					25	25
	Maximum operating frequency for general use acc. to UL and CSA		op. c./h	360			
	Electrical endurance for general use acc. to UL and CSA		op. c.	200.000			
	Switching of discharge lamps acc. to standards UL and CSA:						
	single-phase 240 V - standard ballast	I_e	A	20	20		
	three-phase 480 V - standard ballast					25	25
	Maximum operating frequency for discharge lamps acc. to UL and CSA		op. c./h	360			
	Electrical endurance for discharge lamps acc. to UL and CSA		op. c.	100.000			
	Rated operational current for AC-5a (at 230 V)	I_e	A	8.8		11.2	
	Maximum operating frequency for AC-5a		op. c./h	600			
	Electrical endurance for AC-5a		op. c.	100.000			
	Rated operational current for AC-5b (at 230 V)	I_e	A	8.8		9.7	
	Maximum operating frequency for AC-5b		op. c./h	600			
	Electrical endurance for AC-5b		op. c.	100.000			
	Rated operational current for AC-6a (at 230 V)	I_e	A	4		4.8	
	Maximum operating frequency for AC-6a		op. c./h	600			
	Electrical endurance for AC-6a		op. c.	100.000			
	Switching of capacitors AC-6b and AC-7c (at 230 V)	C	µF	30		36	
	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	20/15/10/6/0.6		25/20/15/6/0.6	
	2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			25/18/15/10/6		25/25/20/10/6	
	3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC					25/25/25/20/15	
	4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC					25/25/25/20/15	
	Maximum operating frequency for DC-1		op. c./h	300			
	Electrical endurance for DC-1		op. c.	100.000			
	Rated operational current for DC-3 (L/R ≤ 2 ms):						
	1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	10/5/2/1/0.1		15/8/4/1.3/0.2	
	2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			20/10/8/4/0.4		25/10/8/4/0.4	
	3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC					25/25/25/15/3	
	4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC					25/25/25/20/8	
	Maximum operating frequency for DC-3		op. c./h	300			
	Electrical endurance for DC-3		op. c.	100.000			
	Rated operational current for DC-5 (L/R ≤ 7.5 ms):						
	1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	10/4/1/0.3/0.06		15/5/3/0.5/0.1	
	2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			20/8/6/2/0.2		25/15/10/4/0.4	
	3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC					25/25/20/12/2	
	4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC					25/25/25/15/5	
	Maximum operating frequency for DC-5		op. c./h	300			
	Electrical endurance for DC-5		op. c.	100.000			
	Terminal capacity:						
	rigid (solid and stranded)	S		16 ... 10 AWG / 1 ... 10 mm²			
	flexible			16 ... 8 AWG / 1 ... 6 mm²			
	Length of removed wire insulation			0.354 in / 9 mm			
	Screw			M3.5			
	Screw head			PZ1			
	Tightening torque			10.62 lb-in / 1.2 Nm			
AUXILIARY CIRCUIT	Contact reliability			≥17 V; ≥50 mA			
	Minimum distance of open contacts			0.118 in /3.6 mm			
	Power dissipation per pole		W	1.7		2.2	
	Overload current withstand capability:						
	10 s			72		68	
	Maximum back-up fuse for short-circuit protection gL and gG:						
	coordination type 1 (at prospective current 3 kA)	I_v	A			25	25
	coordination type 2 (at prospective current 3 kA)			20	20		

UP TO 25 A

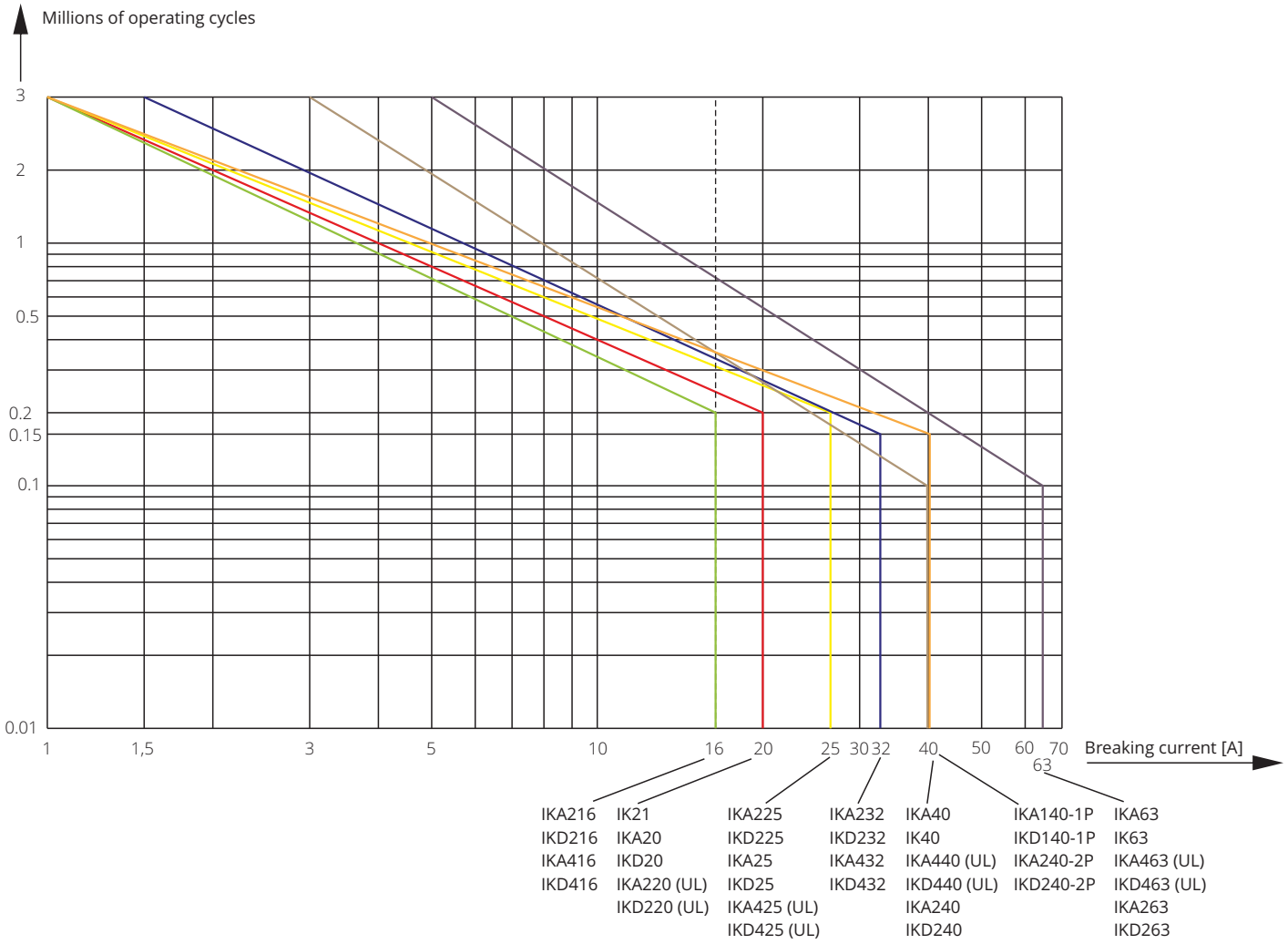
	Type	Symbol	Unit	IKA220	IKD220	IKA425	IKD425
AUXILIARY CIRCUIT	Maximum back-up fuse for short-circuit protection K5 acc. to UL and CSA	U_i	V	20	20	25	25
	Rated insulation voltage	U_i	V	IEC: 440 ; UL/CSA: 480			
	Rated impulse withstand voltage	U_{imp}	kV	4			
	Rated operational voltage	U_e	V	IEC: 230/100 ; UL/CSA: 240 (AC), 250 (DC)			
	Rated frequency	f	Hz	50/60			
	Thermal current	I_{th}	A	20		25	
	Rated operational current for AC-15:						
	single-phase 230 V	I_e	A	6			
	single-phase 400 V			4			
	Maximum operating frequency for AC-15		op. c./h	600			
	Electrical endurance for AC-15		op. c.	300.000		500.000	
	Switching of auxiliary loads according to standard UL and CSA			B300, P300			
	Maximum operating frequency for auxiliary loads according to UL and CSA		op. c./h	360			
	Electrical endurance for auxiliary loads according to UL and CSA		op. c.	100.000			
	Rated operational current for DC-13:						
	1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	6/4/1/0.3/0.05			
	2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			6/6/4/1/0.1			
	3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			6/6/6/3/1			
	4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			6/6/6/4/2			
	Maximum operating frequency for DC-13		op. c./h	300			
	Electrical endurance for DC-13		op. c.	200.000			
	Terminal capacity:						
	rigid (solid and stranded)	S		16...10 AWG / 1...10 mm^2			
	flexible			16... 8 AWG / 1...6 mm^2			
	Length of removed wire insulation			0.354 in / 9 mm			
	Screw			M3.5			
	Screw head			PZ1			
	Tightening torque			10.62 lb-in / 1.2 Nm			
COIL	Range of control voltage for switch-on	U_c	%	85 ... 110			
	Range of control voltage for drop out	U_c	%	AC: 75 ... 20 / DC: 75 ... 10 (where is applicable)			
	Kind of voltage			AC	AC/DC	AC	AC/DC
	Standard control voltages	U_c	V	12, 24, 48, 110, 120, 127, 208, 230, 240			
	Frequency of AC control voltage	f	Hz	50/60			
	Control mode			remote control with U_c			
	Impulse duration of control voltage:						
	minimum			permanent			
	maximum			permanent			
	Minimum duration between two impulses of control voltage		ms	AC: 150 / DC: 500 (where is applicable)			
	Surge immunity withstand voltage 1.2/50 µs		kV	2			
	acc. to standard IEC/EN 61000-4-5						
	Coil consumption:						
	switch-on		VA/W	12/10	2.1/2.1	33/25	2.6/2.6 [1]
	operation			2.8/1.2	2.1/2.1	5.5/1.6	2.6/2.6 [1]
	Delays:						
	make		ms	15 ... 25	15 ... 45	10 ... 30	15 ... 45
	brake			10 ... 30	20 ... 50	10 ... 30	20 ... 70
	Terminal capacity:						
	rigid (solid and stranded)			16 ... 14 AWG / 1 ... 2.5 mm^2			
	flexible			16 ... 14 AWG / 1 ... 2.5 mm^2			
	Length of removed wire insulation			0.276 in / 7 mm			
	Screw			M3			
	Screw head			PZ1			
	Tightening torque			5.31 lb-in / 0.6 Nm			
SAFETY	MTTF - Mean time to failure		h	General Use: 4.166			
	MTTF = $1/\lambda$ = B10/(0.1 n_{op})			Motor: 6.250		Motor: 10.416	
	$MTTF_d$ - Mean time to failure dangerous		h	General Use: 5.555			
	MTTFd = $1/\lambda_d$ = $B10_d$/(0.1 n_{op})			Motor: 8.333		Motor: 13.888	
	B10 - Number of operating cycles until 10 % of devices fail		op. c.	General Use: 150.000			
				Motor: 225.000		Motor: 375.000	
	$B10_d$ - Number of operating cycles until 10 % of device dangerous		op. c.	General Use: 200.000			
	$B10_d$ = B10/ratio of dangerous failures			Motor: 300.000		Motor: 500.000	
	λ - Failure rate		1/h	General Use: 0.00024			
	λ = (0.1 n_{op})/B10			Motor: 0.00016		Motor: 0.000096	
	λ_d - Failure rate dangerous		1/h	General Use: 0.00018			
	λ_d = (0.1 n_{op})/$B10_d$			Motor: 0.00012		Motor: 0.000072	
	Ratio of dangerous failures		%	75			
	n_{op} - Operating cycles (operating cycles/h)		op. c./h	360			

1) Coil consumption for contact version -04 is 3.8 VA / 3.8 W

Electrical endurance

AC-1/230V/1-phase for IKA20, IKD20,IKA216, IKD216, IKA220 (UL), IKD220 (UL), IKA225, IKD225, IKA232, IKD232, IKA440 (UL), IKD440 (UL), IKA463 (UL), IKD463 (UL), IKA140-1P, IKD140-1P, IKA240-2P, IKD240-2P, IKA240, IKD240, IKD263, IKD263
AC-1/400V/3-phase for IK21, IKA25, IKD25,IKA416, IKD416, IKA425 (UL), IKD425 (UL), IKA432, IKD432, IKA40, IK40, IKA63, IK63

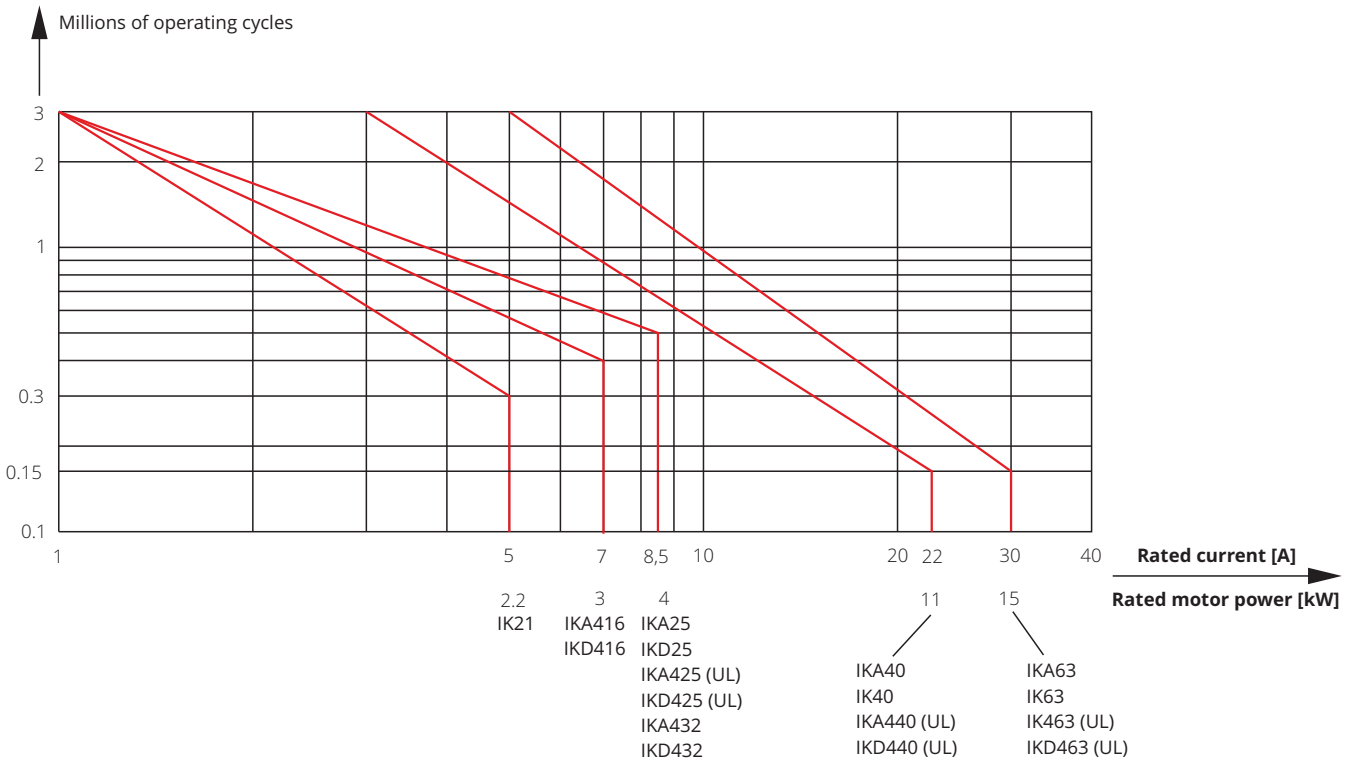
Diagram 1



Electrical endurance

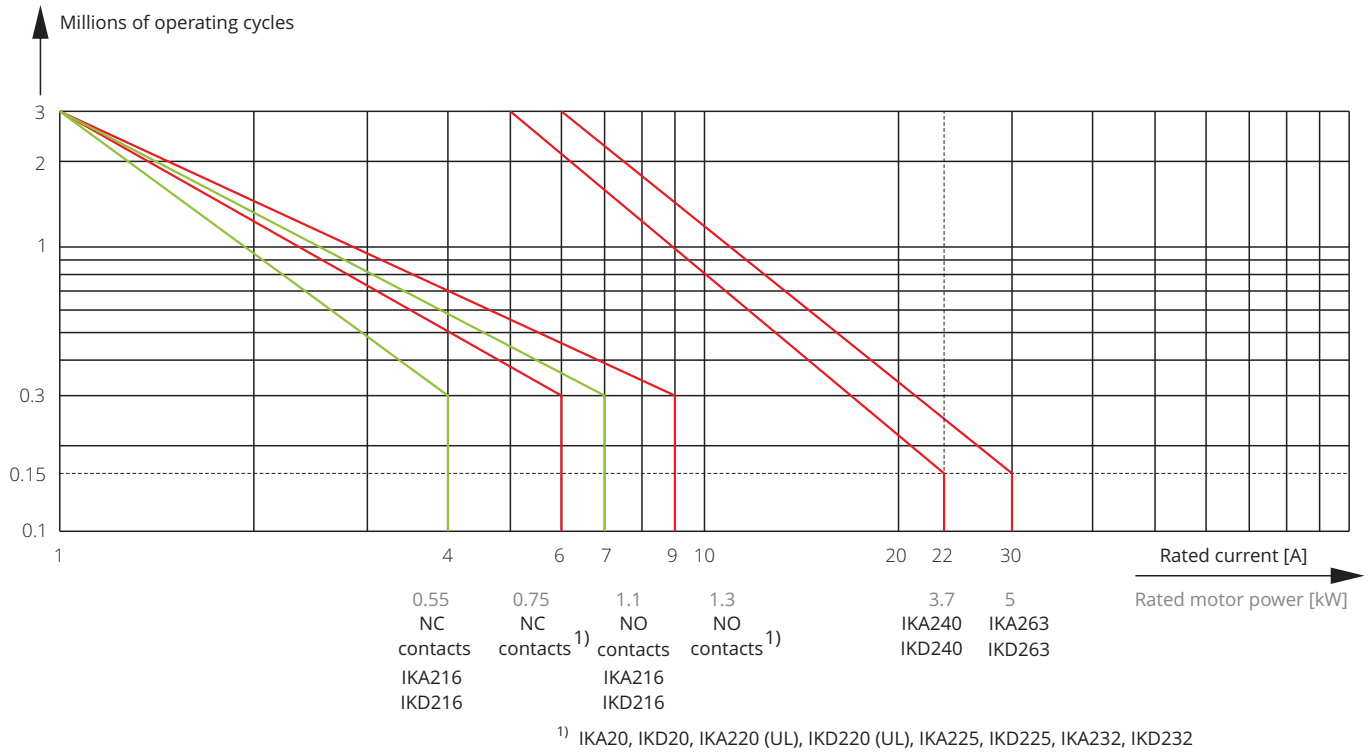
AC-3, AC-3e/400V/3-phase for IK21, IKA416, IKD416, IKA25, IKD25, IKA425 (UL), IKD425 (UL), IKA432, IKD432, IKA40, IKA63, Ik63, IKA440 (UL), IKD440 (UL), IKA463 (UL), IKD463 (UL)

Diagram 2



AC-3, AC-3e/230V/1-phase for IKA216, IKD216, IKA20, IKD20, IKA220 (UL), IKD220 (UL), IKA225, IKD225, IKA232, IKD232, IKA240, IKD240, IKA263, IKD263

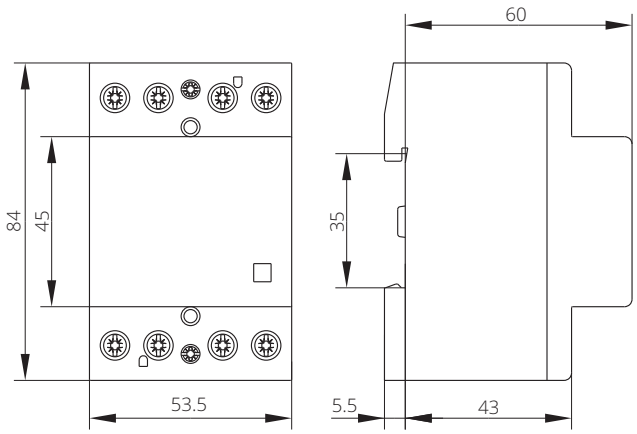
Diagram 3



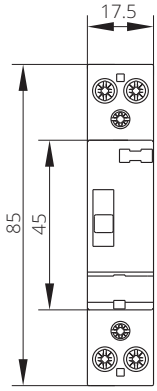
1) IKA20, IKD20, IKA220 (UL), IKD220 (UL), IKA225, IKD225, IKA232, IKD232

Dimensions (in milimeters unless otherwise stated)

IK40, IK63
IKA40, IKA63



IKA216-R, IKD216-R
IKA20-R, IKD20-R
IKA225-R, IKD225-R
IKA232-R, IKD232-R

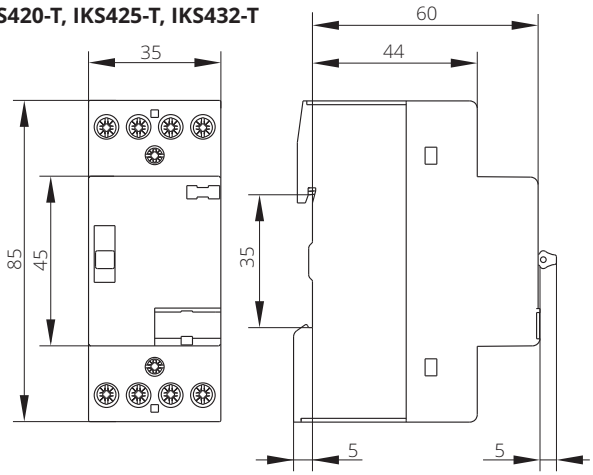


IKA216-T, IKD216-T
IKA20-T, IKD20-T
IKA225-T, IKD225-T
IKA232-T, IKD232-T

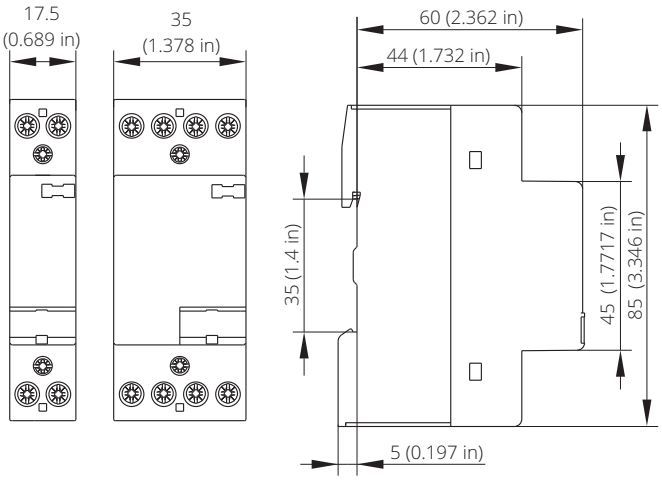
IKS220-R, IKS225-R
IKS232-R

IKS220-T, IKS225-T
IKS232-T

IKA416-R, IKD416-R, IKA416-T, IKD416-T
IKA25-R, IKD25-R, IKA25-T, IKD25-T
IKA432-R, IKD432-R, IKA432-R, IKD432-T
IKS420-R, IKS425-R, IKS432-R
IKS420-T, IKS425-T, IKS432-T



IKA220 (UL) **IKA425 (UL)**
IKD220 (UL) **IKD425 (UL)**



IKA440 (UL), IKD440 (UL)
IKA463 (UL), IKD463 (UL)