



Installation contactors

Installation contactors



Use

Installation contactors are the most flexible switching devices for use in all types of applications. In electronic system provide reliable, safe and efficient management of electrical equipment.



For universal switching

- All kind of motors
- Electric heating
- Lights and lighting
- Electrical and electronic equipment



Advanced operation

- Remote control
- Manual control



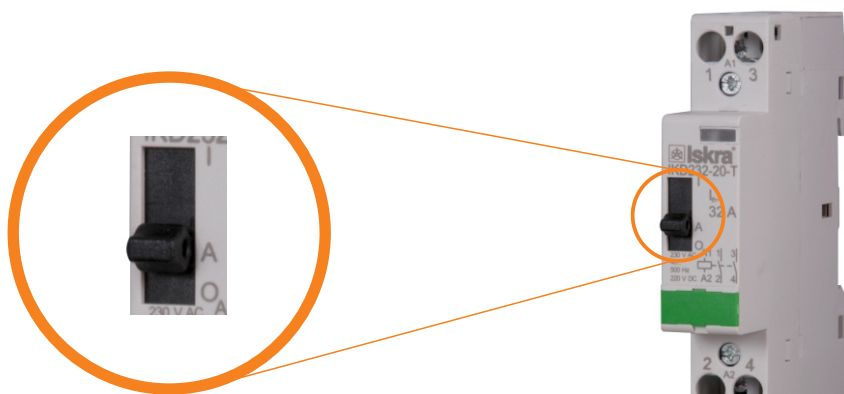
Other benefits

- Silent hum-free AC/DC version with overvoltage protection
- Available also standard AC version
- Fast switching
- Wide application
- Mounting on 35 mm rail
- Sealing terminal covers
- Control voltages up to 400 V



Options

Auto-On-Off selector+mechanical indicator



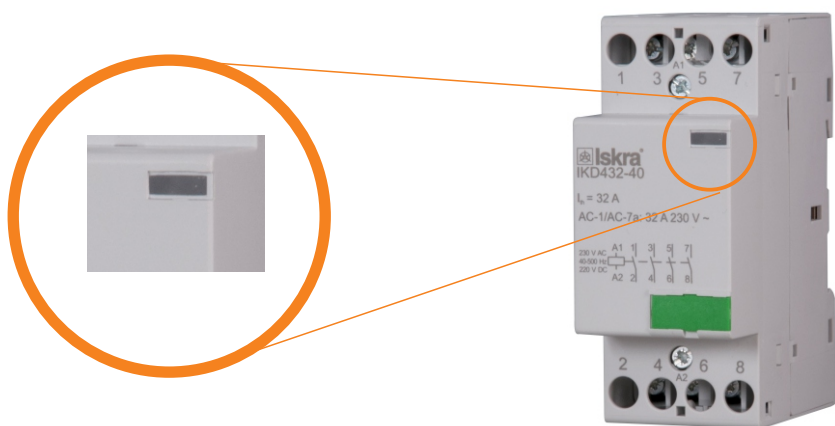
A: the contactor functions as an installation contactor without manual control

O: permanently switched off control voltage

I: at manual shifting the handle from position A to I, make contacts are closed and break contacts are open.

R: handle remain in position I. When control voltage is applied, the handle is automatically set to position A.

T: manual momentary control.



Signaling windows:

is used to see position of main contacts. When there is orange colour, normally open contacts (NO) are closed and normally closed contacts (NC) are open.





Technical characteristics

Dimensions



Installation Contactors

up to 25 A



TECHNICAL DATA

	Type	Symbol	Unit	IK21	IKA216	IKD216	IKA20	IKD20	IKA225	IKD225
					IKA216-R IKA216-T	IKD216-R IKD216-T	IKA20-R IKA20-T ¹⁾	IKD20-R IKD20-T ¹⁾	IKA225-R IKA225-T	IKD225-R IKD225-T
Standards				IEC/EN 61095, IEC/EN 60947-4-1, IEC/EN 60947-5-1						
Approvals				CE, EAC	CE		CE, CB, NF, EAC		CE	
Module width				2	1					
Number of poles				4	2					
Degree of protection				IP20 (IP40 when installed in installation box - distribution board)						
Pollution degree				3						
Climatic conditions				95 % relative humidity						
Ambient temperature (open)			°C	-15 ... +55 ⁴⁾						
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	max. 3 max. 2					
Noise level (operation)			dB	30	30	20	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	3.000.000	10.000.000	
Weight			g	170	130	130	130	130	130	130
Contact reliability				≥17 V; ≥50 mA						
Minimum distance of open contacts			mm	3.6						
Power dissipation per pole			W	2.0	1.2	1.2	1.7	1.7	2.0	2.0
Overload current withstand capability: 10 s			A	40	56		72			
Maximum back-up fuse for short-circuit protection gL and gG: coordination type 1 coordination type 2	I _v	A		20	16	16	20	20	25	25
Rated insulation voltage	U _i	V		415	440					
Rated impulse withstand voltage	U _{imp}	kV		4						
Rated operational voltage	U _e	V		400	400 ²⁾³⁾					
Rated frequency	f	Hz		50/60						
Thermal current	I _{th}	A		20	16		20		25	
Rated operational current for AC-1, AC-7a and AC-21	I _e	A		20	16		20		25	
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		7.5	3.5		4		5.4	
Maximum operating frequency for AC-1, AC-7a and AC-21		op. c./h		13	600					
Electrical endurance for AC-1, AC-7a and AC-21		op. c.		200.000						
Rated operational current for AC-2	I _e	A		10			12		14	
Operational power for AC-2: single-phase 230 V three-phase 230 V three-phase 400 V	P _e	kW		2.5	1.5		1.8		2.0	
Maximum operating frequency for AC-2		op. c./h		4.5	120					
Electrical endurance for AC-2		op. c.		100.000						
Rated operational current for AC-22	I _e	A		20	16		20		25	
Operational power for AC-22: single-phase 230 V three-phase 230 V three-phase 400 V	P _e	kW		3.7	2.9		3.7		4.6	
Maximum operating frequency for AC-22		op. c./h		6.3	300					
Electrical endurance for AC-22		op. c.		11	50.000					
Rated operational current for AC-3, AC-7b and AC-23	I _e	A		5	NO: 7 / NC: 4		NO: 9 / NC: 6			
Operational power for AC-3, AC-7b and AC-23: single-phase 230 V three-phase 230 V three-phase 400 V	P _e	kW		0.37	NO: 1.1 / NC: 0.55		NO: 1.3 / NC: 0.75			
Maximum operating frequency for AC-3, AC-7b and AC-23		op. c./h		1.1	600					
Electrical endurance for AC-3, AC-7b and AC-23		op. c.		2.2	300.000					

¹⁾ Available approvals only CE

²⁾ Rated operational voltage between two line (phase) conductors

³⁾ Rated operational voltage for versions of contacts -10 and -01 is 230 V

⁴⁾ Ambient temperature (open) -25...+55 °C for version with 2NO and 4NO contacts

TECHNICAL DATA

Type	Symbol	Unit	IK21	IKA216	IKA216-R	IKA216-T	IKD216	IKD216-R	IKD216-T	IKA20	IKA20-R	IKA20-T	IKD20	IKD20-R	IKD20-T	IKA225	IKA225-R	IKA225-T	IKD225	IKD225-R	IKD225-T	
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 \leq 1 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	20/12/6/2/0.5	16/12/8/4/0.5			20/15/10/6/0.6			25/20/15/6/0.6												
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 \leq 2 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 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									
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 \leq 7.5 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	20/10/8/4/0.4	16/10/8/4/0.4			20/10/8/4/0.4			25/16/12/5.5/0.6												
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) flexible	S	mm ²	1 ... 2.5	1 ... 10										1 ... 6								
Length of removed wire insulation		mm	9																			
Screw			M3.5																			
Screw head			PZ2	PZ1																		
Tightening torque		Nm	1.2																			
Contact reliability			$\geq 17 \text{ V}; \geq 50 \text{ mA}$																			
Minimum distance of open contacts		mm	3.6																			
Power dissipation per pole		W	2	1.3	1.3	1.7	1.7	2	2													
Overload current withstand capability: 10 s		A	40	56			72															
Maximum back-up fuse for short-circuit protection gL and gG: coordination type 1 coordination type 2	I_v	A	20	16	16	20	20	25	25													
Rated insulation voltage	U_i	V	415	440																		
Rated impulse withstand voltage	U_{imp}	kV	4																			
Rated operational voltage	U_e	V	230/400																			
Rated frequency	f	Hz	50/60																			
Thermal current	I_{th}	A	20	16			20			25												
Rated operational current for AC-15: single-phase 230 V single-phase 400 V	I_e	A	6										4									
Maximum operating frequency for AC-15		op. c./h	1200	600																		
Electrical endurance for AC-15		op. c.	200.000	300.000																		
Rated operational current for DC-13: 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 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										6/6/4/1/0.1									
			6/6/6/3/1																			
			6/6/6/4/2																			

Installation Contactors

up to 25 A



TECHNICAL DATA

	Type	Symbol	Unit	IK21	IKA216	IKD216	IKA20	IKD20	IKA225	IKD225
					IKA216-R IKA216-T	IKD216-R IKD216-T	IKA20-R IKA20-T	IKD20-R IKD20-T	IKA225-R IKA225-T	IKD225-R IKD225-T
AUXILIARY CIRCUIT	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	mm ²	1 ... 2.5	1 ... 10					
	flexible			1 ... 2.5	1 ... 6					
	Length of removed wire insulation		mm	9						
	Screw			M3.5						
	Screw head		mm	PZ2	PZ1					
	Tightening torque			1.2						
	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	AC/DC	AC	AC/DC	AC	AC/DC	
Standard control voltages	U _c	V	12, 24, 48, 120, 230, 400	12, 24, 48, 120, 230						
Frequency of AC control voltage	f	Hz	50/60	50/60	40 ... 500	50/60	40 ... 500	50/60	40 ... 500	
Control mode			remote control with U _c / manual control only for types with -R and -T							
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 acc. to standard IEC/EN 61000-4-5		kV	2							
COIL	Coil consumption: switch-on	VA/W	30/25	12/10	2.1/2.1	12/10	2.1/2.1	12/10	2.1/2.1	
	operation		5/1.5	2.8/1.2	2.1/2.1	2.8/1.2	2.1/2.1	2.8/1.2	2.1/2.1	
	Delays: make	ms	7 ... 20	15 ... 25	15 ... 45	15 ... 25	15 ... 45	15 ... 25	15 ... 45	
	brake		10 ... 20	10 ... 30	20 ... 50	10 ... 30	20 ... 50	10 ... 30	20 ... 50	
	Terminal capacity: rigid (solid and stranded)	mm ²	1 ... 2.5							
	flexible		1 ... 2.5							
	Length of removed wire insulation	mm	9	7						
	Screw		M3.5	M3						
	Screw head		PZ2	PZ1						
	Tightening torque	Nm	1.2	0.6						
SAFETY	MTTF - Mean time to failure MTTF = 1/λ = B10/(0.1 n _{op})	h	AC-1: 5.000							
			AC-3: 7.500							
	MTTF _d - Mean time to failure dangerous MTTF _d = 1/λ _d = B10 _d /(0.1 n _{op})	h	AC-1: 6.666							
			AC-3: 10.000							
	B10 - Number of operating cycles until 10 % of devices fail	op. c.	AC-1: 150.000							
			AC-3: 225.000							
	B10 _d - Number of operating cycles until 10 % of device dangerous	op. c.	AC-1: 200.000							
	B10 _d = B10/ratio of dangerous failures		AC-3: 300.000							
	λ - Failure rate λ = (0.1 n _{op})/B10	1/h	AC-1: 0.0002							
			AC-3: 0.000133							
λ _d - Failure rate dangerous λ _d = (0.1 n _{op})/B10 _d	1/h	AC-1: 0.00015								
		AC-3: 0.0001								
Ratio of dangerous failures	%	75								
n _{op} - Operating cycles (operating cycles/h)	op. c./h	300								

TECHNICAL DATA

Type	Symbol	Unit	IKA232	IKD232	IKA416	IKD416	IKA25	IKD25	IKA432	IKD432
			IKA232-R IKA232-T	IKD232-R IKD232-T	IKA416-R IKA416-T	IKD416-R IKD416-T	IKA25-R IKA25-T ¹⁾	IKD25-R ¹⁾ IKD25-T ¹⁾	IKA432-R IKA432-T	IKD432-R IKD432-T
Standards			IEC/EN 61095, IEC/EN 60947-4-1, IEC/EN 60947-5-1							
Approvals			CE				CE, CB, NF, EAC		CE	
Module width			1		2					
Number of poles			2		4					
Degree of protection			IP20 (IP40 when installed in installation box - distribution board)							
Pollution degree			3							
Climatic conditions			95 % relative humidity							
Ambient temperature (open)		°C	-15 ... +55 ⁴⁾							
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			max. 3							
(40 ... 55) °C			max. 2							
Noise level (operation)		dB	30	20	30	20	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	3.000.000	10.000.000	3.000.000	10.000.000
Weight		g	130	130	230	250	230	250	230	250
Contact reliability			≥17 V; ≥50 mA							
Minimum distance of open contacts		mm	3,6							
Power dissipation per pole		W	2,5	2,5	1,3	1,3	2,2	2,2	2,5	2,5
Overload current withstand capability:										
10 s		A	72				68			
Maximum back-up fuse for short-circuit protection gL and gG:										
coordination type 1	I _v	A	32	32			25	25	32	32
coordination type 2					16	16				
Rated insulation voltage	U _i	V	440							
Rated impulse withstand voltage	U _{imp}	kV	4							
Rated operational voltage	U _e	V	400 ²⁾³⁾		400					
Rated frequency	f	Hz	50/60							
Thermal current	I _{th}	A	32		16		25		32	
Rated operational current for AC-1, AC-7a and AC-21	I _e	A	32		16		25		32	
Operational power for AC-1, AC-7a and AC-21:										
single-phase 230 V	P _e	kW	7		3,5		5,4		7	
three-phase 230 V					6		9		12	
three-phase 400 V					10,5		16		21	
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.	NO: 150.000 / NC: 100.000		200.000				150.000	
Rated operational current for AC-2	I _e	A	16		10		14		16	
Operational power for AC-2:										
single-phase 230 V	P _e	kW	2,4		1,5		2		2,4	
three-phase 230 V					2,5		3,6		4,1	
three-phase 400 V					4,5		6		7,2	
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	32		16		25		32	
Operational power for AC-22:										
single-phase 230 V	P _e	kW	5,9		2,9		4,6		5,9	
three-phase 230 V					5,1		8		10,2	
three-phase 400 V					8,8		13,8		17,7	
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-7b and AC-23	I _e	A	NO: 9 / NC: 6		7		8,5			
Operational power for AC-3, AC-7b and AC-23:										
single-phase 230 V	P _e	kW	NO: 1.3 / NC: 0.75		1,1		1,3			
three-phase 230 V					1,5		2,2			
three-phase 400 V					3		4			
Maximum operating frequency for AC-3, AC-7b and AC-23		op. c./h	600							
Electrical endurance for AC-3, AC-7b and AC-23		op. c.	300.000		500.000					

¹⁾ Available approvals only CE

²⁾ Rated operational voltage between two line (phase) conductors

³⁾ Rated operational voltage for versions of contacts -10 and -01 is 230 V

⁴⁾ Ambient temperature (open) -25...+55 °C for version with 2NO and 4NO contacts

Installation Contactors

up to 32 A



TECHNICAL DATA

Type	Symbol	Unit	IKA232	IKD232	IKA416	IKD416	IKA25	IKD25	IKA432	IKD432	
			IKA232-R IKA232-T	IKD232-R IKD232-T	IKA416-R IKA416-T	IKD416-R IKD416-T	IKA25-R IKA25-T	IKD25-R IKD25-T	IKA432-R IKA432-T	IKD432-R IKD432-T	
Rated operational current for AC-5a (at 230 V)	I_e	A	13		8.8		11.2		13		
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	11		8.8		9.7		11		
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	6		4		2.8		6		
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	μ F	40		30		36		40		
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 \leq 1 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	32/25/15/6/0.6		16/12/8/4/0.5		25/20/15/6/0.6		32/25/15/6/0.6		
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 \leq 2 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	20/10/4/1.3/0.2		10/5/2/1/0.1		15/8/4/1.3/0.2		20/10/4/1.3/0.2		
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 \leq 7.5 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	18/6/3/0.5/0.1		10/4/1/0.3/0.06		15/5/3/0.5/0.1		18/6/3/0.5/0.1		
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) flexible	S	mm ²	1 ... 10 1 ... 6								
Length of removed wire insulation		mm	9								
Screw			M3.5								
Screw head			PZ1								
Tightening torque		Nm	1.2								
Contact reliability			≥ 17 V; ≥ 50 mA								
Minimum distance of open contacts		mm	3.6								
Power dissipation per pole		W	2.5	2.5	1.3	1.3	2.2	2.2	2.5	2.5	
Overload current withstand capability: 10 s		A	72		56		68				
Maximum back-up fuse for short-circuit protection gL and gG: coordination type 1 coordination type 2	I_v	A	32	32	16	16	25	25	32	32	
Rated insulation voltage	U_i	V	440								
Rated impulse withstand voltage	U_{imp}	kV	4								
Rated operational voltage	U_e	V	230/400								
Rated frequency	f	Hz	50/60								
Thermal current	I_{th}	A	32		16		25		32		
Rated operational current for AC-15: single-phase 230 V single-phase 400 V	I_e	A	6 4								
Maximum operating frequency for AC-15		op. c./h	600								
Electrical endurance for AC-15		op. c.	300.000		500.000						
Rated operational current for DC-13: 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 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 6/6/4/1/0.1 6/6/6/3/1 6/6/6/4/2								

TECHNICAL DATA

	Type	Symbol	Unit	IKA232	IKD232	IKA416	IKD416	IKA25	IKD25	IKA432	IKD432
				IKA232-R IKA232-T	IKD232-R IKD232-T	IKA416-R IKA416-T	IKD416-R IKD416-T	IKA25-R IKA25-T	IKD25-R IKD25-T	IKA432-R IKA432-T	IKD432-R IKD432-T
AUXILIARY CIRCUIT	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) flexible	S	mm ²	1 ... 10 1 ... 6							
	Length of removed wire insulation		mm	9							
	Screw			M3.5							
	Screw head		mm	PZ1							
	Tightening torque			1.2							
	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	AC	AC/DC	AC	AC/DC	
Standard control voltages	U _c	V	12, 24, 48, 120, 230	12, 24, 48 120, 230, 400	12, 24, 48	12, 24, 48	12, 24, 48	12, 24, 48	12, 24, 48	12, 24, 48	
Frequency of AC control voltage	f	Hz	50/60	40 ... 500	50/60	40 ... 500	50/60	40 ... 500	50/60	40 ... 500	
Control mode			remote control with U _c / manual control only for types with -R and -T								
Impulse duration of control voltage: minimum maximum			permanent 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 acc. to standard IEC/EN 61000-4-5		kV	2								
Coil consumption: switch-on operation		VA/W	12/10 2.8/1.2	2.1/2.1 2.1/2.1	33/25 5.5/1.6	2.6/2.6 ¹⁾ 2.6/2.6 ¹⁾	33/25 5.5/1.6	2.6/2.6 ¹⁾ 2.6/2.6 ¹⁾	33/25 5.5/1.6	2.6/2.6 ¹⁾ 2.6/2.6 ¹⁾	
Delays: make brake		ms	15 ... 25 10 ... 30	15 ... 45 20 ... 50	10 ... 30 10 ... 30	15 ... 45 20 ... 70	10 ... 30 10 ... 30	15 ... 45 20 ... 70	10 ... 30 10 ... 30	15 ... 45 20 ... 70	
Terminal capacity: rigid (solid and stranded) flexible		mm ²	1 ... 2.5 1 ... 2.5								
Length of removed wire insulation		mm	7								
Screw			M3								
Screw head			PZ1								
Tightening torque		Nm	0.6								
SAFETY	MTTF - Mean time to failure MTTF = 1/λ = B10/(0.1 n _{op})		h	AC-1: 3.750 AC-3: 7.500	AC-1: 5.000 AC-3: 12.500				AC-1: 3.750		
	MTTF _d - Mean time to failure dangerous MTTF _d = 1/λ _d = B10 _d /(0.1 n _{op})		h	AC-1: 5.000 AC-3: 10.000	AC-1: 6.666 AC-3: 16.666				AC-1: 5.000		
	B10 - Number of operating cycles until 10 % of devices fail		op. c.	AC-1: 112.500 for NO AC-3: 225.000	AC-1: 150.000 AC-3: 375.000				AC-1: 112.500		
	B10 _d - Number of operating cycles until 10 % of device dangerous B10 _d = B10/ratio of dangerous failures		op. c.	AC-1: 150.000 for NO AC-3: 300.000	AC-1: 200.000 AC-3: 500.000				AC-1: 150.000		
	λ - Failure rate λ = (0.1 n _{op})/B10		1/h	AC-1: 0.000266 for NO AC-3: 0.000133	AC-1: 0.0002 AC-3: 0.00008				AC-1: 0.000266		
	λ _d - Failure rate dangerous λ _d = (0.1 n _{op})/B10 _d		1/h	AC-1: 0.0002 for NO AC-3: 0.0001	AC-1: 0.00015 AC-3: 0.00006				AC-1: 0.0002		
	Ratio of dangerous failures		%	75							
	n _{op} - Operating cycles (operating cycles/h)		op. c./h	300							

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

Installation Contactors

up to 63 A



TECHNICAL DATA

Type	Symbol	Unit	IKA40	IK40	IKA63	IK63
Standards			IEC/EN 61095, IEC/EN 60947-4-1, IEC/EN 60947-5-1			
Approvals			CE, CB, NF, EAC			
Module width			3			
Number of poles			4			
Degree of protection			IP20 (IP40 when installed in installation box - distribution board)			
Pollution degree			3			
Climatic conditions			95 % relative humidity			
Ambient temperature (open)		°C	-15 ... +55 ³⁾			
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	max. 3	no limitation	max. 3
(40 ... 55) °C			no limitation	max. 2	no limitation	max. 2
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	350	420	350	420
Contact reliability			≥17 V; ≥50 mA			
Minimum distance of open contacts		mm	3.6			
Power dissipation per pole		W	4	4	8	8
Overload current withstand capability:						
10 s		A	176		240	
Maximum back-up fuse for short-circuit protection gL and gG:						
coordination type 1 (at prospective current 3 kA)	I _v	A	63	63	80	80
coordination type 2 (at prospective current 3 kA)			40	40	63	63
Rated insulation voltage	U _i	V	440			
Rated impulse withstand voltage	U _{imp}	kV	6			
Rated operational voltage	U _e	V	400			
Rated frequency	f	Hz	50/60			
Thermal current	I _{th}	A	40		63	
Rated operational current for AC-1, AC-7a and AC-21	I _e	A	40		63 ¹⁾	
Operational power for AC-1, AC-7a and AC-21:						
single-phase 230 V	P _e	kW	8.7		13.3 ²⁾	
three-phase 230 V			16		24 ²⁾	
three-phase 400 V			26		40 ²⁾	
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.	100.000			
Rated operational current for AC-2	I _e	A	25		32	
Operational power for AC-2:						
single-phase 230 V	P _e	kW	3.7		4.8	
three-phase 230 V			6.5		8.3	
three-phase 400 V			11.2		14.4	
Maximum operating frequency for AC-2		op. c./h	120			
Electrical endurance for AC-2		op. c.	50.000			
Rated operational current for AC-22	I _e	A	40		63	
Operational power for AC-22:						
single-phase 230 V	P _e	kW	7.4		11.6	
three-phase 230 V			12.7		20.1	
three-phase 400 V			22.2		34.9	
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-7b and AC-23	I _e	A	22		30	
Operational power for AC-3, AC-7b and AC-23:						
single-phase 230 V	P _e	kW	3.7		5	
three-phase 230 V			5.5		8.5	
three-phase 400 V			11		15	
Maximum operating frequency for AC-3, AC-7b and AC-23		op. c./h	600			
Electrical endurance for AC-3, AC-7b and AC-23		op. c.	150.000			

¹⁾ I_e (AC-1) for IK63-04 is 50 A

²⁾ Rated power (AC-1) for IK63-04:
single-phase 230 V = 10.9 kW
three-phase 230 V = 18.9 kW
three-phase 400 V = 32.9 kW

³⁾ Ambient temperature (open) -25...+55 °C for version with 4NO contacts

TECHNICAL DATA

Type	Symbol	Unit	IKA40	IK40	IKA63	IK63
Rated operational current for AC-5a (at 230 V)	I_e	A	20		32	
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	17.6		22	
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	10.8		17.2	
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	220		330	
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 \leq 1 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	40/25/18/4/1.2		63/26/20/4/1.2	
			40/38/32/10/8		63/42/34/10/8	
			40/40/40/30/20		63/63/60/35/30	
			40/40/40/40/40		63/63/63/63/63	
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 \leq 2 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	22/10/5/1.5/0.3		25/11/5/1.5/0.3	
			40/20/16/5/1		45/22/18/5/1	
			40/40/32/15/4		63/45/35/18/5	
			40/40/40/40/10		63/63/63/63/10	
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 \leq 7.5 ms): 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC	I_e	A	20/8/4/1/0.2		25/10/5/1/0.2	
			40/18/14/5/0.8		45/20/15/5/0.8	
			40/40/28/12/3		63/44/30/15/4	
			40/40/40/35/8		63/63/60/45/10	
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) flexible	S	mm ²	1.5 ... 25 1.5 ... 16			
Length of removed wire insulation		mm	10			
Screw			M5			
Screw head			PZ2			
Tightening torque		Nm	3.5			
Contact reliability			$\geq 17 \text{ V}; \geq 50 \text{ mA}$			
Minimum distance of open contacts		mm	3.6			
Power dissipation per pole		W	4	4	8	8
Overload current withstand capability: 10 s		A	176		240	
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	63	63	80	80
			40	40	63	63
Rated insulation voltage	U_i	V	440			
Rated impulse withstand voltage	U_{imp}	kV	4			
Rated operational voltage	U_e	V	230/400			
Rated frequency	f	Hz	50/60			
Thermal current	I_{th}	A	40		63	
Rated operational current for AC-15: single-phase 230 V single-phase 400 V	I_e	A	6 4			
Maximum operating frequency for AC-15		op. c./h	1.200			
Electrical endurance for AC-15		op. c.	150.000			
Rated operational current for DC-13: 1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 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 6/6/4/1/0.1 6/6/6/3/1 6/6/6/4/2			

Installation Contactors

up to 63 A



TECHNICAL DATA

Type		Symbol	Unit	IKA40	IK40	IKA63	IK63
AUXILIARY CIRCUIT	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	mm ²	1.5 ... 25			
	flexible			1.5 ... 16			
	Length of removed wire insulation		mm	10			
	Screw			M5			
	Screw head		mm	PZ2			
	Tightening torque			3.5			
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, 120, 230, 400	12, 24, 48, 120, 230	12, 24, 48, 120, 230, 400	12, 24, 48, 120, 230
	Frequency of AC control voltage	f	Hz	50/60	40 ... 500	50/60	40 ... 500
	Control mode			remote control with U _c / manual control only for types with -R			
	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 acc. to standard IEC/EN 61000-4-5		kV	2			
	Coil consumption: switch-on	VA/W		15.4/6	5/5 ¹⁾	15.4/6	5/5 ¹⁾
	operation			7.7/3	5/5 ¹⁾	7.7/3	5/5 ¹⁾
	Delays: make		ms	10 ... 20	15 ... 20	10 ... 20	15 ... 20
	brake			10 ... 15	35 ... 45	10 ... 15	35 ... 45
	Terminal capacity: rigid (solid and stranded)		mm ²	1 ... 2.5			
	flexible			1 ... 2.5			
	Length of removed wire insulation		mm	8			
	Screw			M3			
	Screw head			PZ1			
	Tightening torque		Nm	0.6			
SAFETY	MTTF - Mean time to failure MTTF = 1/λ = B10/(0.1 n _{op})		h	AC-1: 2.500 AC-3: 3.750			
	MTTF _d - Mean time to failure dangerous MTTF _d = 1/λ _d = B10 _d /(0.1 n _{op})		h	AC-1: 3.333 AC-3: 5.000			
	B10 - Number of operating cycles until 10 % of devices fail		op. c.	AC-1: 75.000 AC-3: 112.500			
	B10 _d - Number of operating cycles until 10 % of device dangerous		op. c.	AC-1: 100.000 AC-3: 150.000			
	B10 _d = B10/ratio of dangerous failures			AC-1: 0.0004 AC-3: 0.000266			
	λ - Failure rate λ = (0.1 n _{op})/B10		1/h	AC-1: 0.0003 AC-3: 0.0002			
	λ _d - Failure rate dangerous λ _d = (0.1 n _{op})/B10 _d		1/h	AC-1: 0.0003 AC-3: 0.0002			
	Ratio of dangerous failures		%	75			
	n _{op} - Operating cycles (operating cycles/h)		op. c./h	300			

¹⁾ Coil consumption for version -22 and -04 is 6.1 VA/6.1 W

TECHNICAL DATA

Type	Symbol	Unit	IKA220	IKD220	IKA425	IKD425
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		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	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
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			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-7b and AC-23	I _e	A	NO: 9 / NC: 6		8,5	
Operational power for AC-3, 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-7b and AC-23		op. c./h	600			
Electrical endurance for AC-3, 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

Installation Contactors UL/CSA

up to 25 A



TECHNICAL DATA

Type	Symbol	Unit	IKA220	IKD220	IKA425	IKD425
Rated motor power acc. to standards UL and CSA:	P _e	HP	1/3	1/3	1/3	1/3
single-phase 120 V			3/4	3/4	3/4	3/4
single-phase 208 V			1	1	1	1
single-phase 240 V					1	1
three-phase 120 V					2	2
three-phase 208 V					3	3
three-phase 240 V					5	5
three-phase 460 V						
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:	I _e	A	20	20		
single-phase 240 V					25	25
three-phase 480 V						
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:	I _e	A	20	20		
single-phase 240 V - standard ballast					25	25
three-phase 480 V - standard ballast						
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):	I _e	A	20/15/10/6/0.6		25/20/15/6/0.6	
1 pole ... 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	
2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			25/25/25/20/15		25/25/25/20/15	
3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			25/25/25/20/15		25/25/25/20/15	
4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC						
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):	I _e	A	10/5/2/1/0.1		15/8/4/1.3/0.2	
1 pole ... 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	
2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			25/25/25/15/3		25/25/25/15/3	
3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			25/25/25/20/8		25/25/25/20/8	
4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC						
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):	I _e	A	10/4/1/0.3/0.06		15/5/3/0.5/0.1	
1 pole ... 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	
2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			25/25/20/12/2		25/25/20/12/2	
3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			25/25/25/15/5		25/25/25/15/5	
4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC						
Maximum operating frequency for DC-5		op. c./h	300			
Electrical endurance for DC-5		op. c.	100.000			
Terminal capacity:	S		16 ... 10 AWG / 1 ... 10 mm ²			
rigid (solid and stranded)			16 ... 8 AWG / 1 ... 6 mm ²			
flexible			0.354 in / 9 mm			
Length of removed wire insulation			M3.5			
Screw			PZ1			
Screw head			10.62 lb-in / 1.2 Nm			
Tightening torque			≥17 V; ≥50 mA			
Contact reliability			0.118 in / 3.6 mm			
Minimum distance of open contacts						
Power dissipation per pole		W	1.7		2.2	
Overload current withstand capability:			72		68	
10 s						
Maximum back-up fuse for short-circuit protection gL and gG:	I _v	A			25	
coordination type 1 (at prospective current 3 kA)			20		20	
coordination type 2 (at prospective current 3 kA)						

TECHNICAL DATA

Type	Symbol	Unit	IKA220	IKD220	IKA425	IKD425
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: 230/400 ; 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 single-phase 400 V	I_e	A	6 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 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 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 6/6/4/1/0.1 6/6/6/3/1 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) flexible	S		16...10 AWG / 1...10 mm ² 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			
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 maximum			permanent permanent			
Minimum duration between two impulses of control voltage		ms	AC: 150 / DC: 500 (where is applicable)			
Surge immunity withstand voltage 1.2/50 μ s acc. to standard IEC/EN 61000-4-5		kV	2			
Coil consumption: switch-on operation		VA/W	12/10 2.8/1.2	2.1/2.1 2.1/2.1	33/25 5.5/1.6	2.6/2.6 ¹⁾ 2.6/2.6 ¹⁾
Delays: make brake		ms	15 ... 25 10 ... 30	15 ... 45 20 ... 50	10 ... 30 10 ... 30	15 ... 45 20 ... 70
Terminal capacity: rigid (solid and stranded) flexible			16 ... 14 AWG / 1 ... 2.5 mm ² 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			
MTTF - Mean time to failure MTTF = $1/\lambda = B10/(0.1 n_{op})$		h	General Use: 4.166 Motor: 6.250 Motor: 10.416			
MTTF _d - Mean time to failure dangerous MTTF _d = $1/\lambda_d = B10_d/(0.1 n_{op})$		h	General Use: 5.555 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 B10 _d = B10/ratio of dangerous failures		op. c.	General Use: 200.000 Motor: 300.000 Motor: 500.000			
λ - Failure rate $\lambda = (0.1 n_{op})/B10$		1/h	General Use: 0.00024 Motor: 0.00016 Motor: 0.000096			
λ_d - Failure rate dangerous $\lambda_d = (0.1 n_{op})/B10_d$		1/h	General Use: 0.00018 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

Installation Contactors UL/CSA up to 63 A



TECHNICAL DATA

Type	Symbol	Unit	IKA440	IKD440	IKA463	IKD463
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			3			
Number of poles			4			
Degree of protection			IP20 (IP40 when installed in installation box - distribution board)			
Pollution degree			3			
Ambient temperature (open)			1)		2)	
Storage temperature			-22 °F ... 176 °F / -30 °C ... +80 °C			
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:			no limit	max. 3	no limit	max. 3
<40 °C						
(40 ... 55) °C						
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	350	420	350	420
Contact reliability			≥17 V; ≥50 mA			
Minimum distance of open contacts			0.118 in / 3.6 mm			
Power dissipation per pole		W	4	4	8	8
Overload current withstand capability:			176		240	
10 s		A				
Maximum back-up fuse for short-circuit protection gL and gG:						
coordination type 1 (at prospective current 3 kA)	I _v	A	63	63	80	80
coordination type 2 (at prospective current 3 kA)			40	40	63	63
Maximum back-up fuse for short-circuit protection KS acc. to UL and CSA	I _v	A	60	60	70	70
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: 400 ; UL/CSA: 480			
Rated frequency	f	Hz	50/60			
Thermal current	I _{th}	A	40		63	
Rated operational current for AC-1, AC-7a and AC-21	I _e	A	40		63	
Operational power for AC-1, AC-7a and AC-21:						
single-phase 230 V	P _e	kW	8.7		13.3	
three-phase 230 V			16		24	
three-phase 400 V			26		40	
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.	100.000			
Rated operational current for AC-2	I _e	A	25		32	
Operational power for AC-2:						
single-phase 230 V	P _e	kW	3.7		4.8	
three-phase 230 V			6.5		8.3	
three-phase 400 V			11.2		14.4	
Maximum operating frequency for AC-2		op. c./h	120			
Electrical endurance for AC-2		op. c.	50.000			
Rated operational current for AC-22	I _e	A	40		63	
Operational power for AC-22:						
single-phase 230 V	P _e	kW	7.4		11.6	
three-phase 230 V			12.7		20.1	
three-phase 400 V			22.2		34.9	
Maximum operating frequency for AC-22		op. c./h	300			
Electrical endurance for AC-22		op. c.	50.000			
Rated operational current for AC-23	I _e	A	22		30	
Operational power for AC-3, AC-7b and AC-23:						
single-phase 230 V	P _e	kW	3.7		5	
three-phase 230 V			5.5		8.5	
three-phase 400 V			11		15	
Maximum operating frequency for AC-3, AC-7b and AC-23		op. c./h	600			
Electrical endurance for AC-3, AC-7b and AC-23		op. c.	150.000			

¹⁾ Surrounding air temperature for 4NO contacts version -13 °F...104 °F / -25 °C ... 40 °C, for others contacts version 5 °F ... 104 °F / -15 °C ... +40 °C

²⁾ Surrounding air temperature for 4NO contacts version -13 °F...95 °F / -25 °C ... 35 °C, for others contacts version 5 °F ... 95 °F / -15 °C ... +35 °C

TECHNICAL DATA

Type	Symbol	Unit	IKA440	IKD440	IKA463	IKD463
Rated motor power acc. to standards UL and CSA:	P _e	HP				
single-phase 120 V			1	1	2	2
single-phase 208 V			2	2	3	3
single-phase 240 V			3	3	5	5
three-phase 120 V			3	3	5	5
three-phase 208 V			7 1/2	7 1/2	10	10
three-phase 240 V			7 1/2	7 1/2	10	10
three-phase 460 V	15	15	20	20		
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.	150.000			
General use according to standards UL and CSA:	I _e	A				
single-phase 240 V			40	40	63	63
three-phase 480 V						
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.	100.000			
Switching of discharge lamps acc. to standards UL and CSA:	I _e	A				
single-phase 240 V - standard ballast			30	30	40	40
three-phase 480 V - standard ballast						
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	20		32	
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	17.6		22	
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	10.8		17.2	
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	220		330	
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):	I _e	A	40/25/18/4/1.2		63/26/20/4/1.2	
1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/38/32/10/8		63/42/34/10/8	
2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/40/40/30/20		63/63/60/35/30	
3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/40/40/40/40		63/63/63/63/63	
4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC						
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):	I _e	A	22/10/5/1.5/0.3		25/11/5/1.5/0.3	
1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/20/16/5/1		45/22/18/5/1	
2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/40/32/15/4		63/45/35/18/5	
3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/40/40/40/10		63/63/63/63/10	
4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC						
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):	I _e	A	20/8/4/1/0.2		25/10/5/1/0.2	
1 pole ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/18/14/5/0.8		45/20/15/5/0.8	
2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/40/28/12/3		63/44/30/15/4	
3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC			40/40/40/35/8		63/63/60/45/10	
4 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC						
Maximum operating frequency for DC-5		op. c./h	300			
Electrical endurance for DC-5		op. c.	100.000			
Terminal capacity:	S		14 ... 10 AWG / 1.5 ... 25 mm ²			
rigid (solid and stranded)			14 ... 4 AWG / 1.5 ... 16 mm ²			
flexible			0.394 in / 10 mm			
Length of removed wire insulation			0.394 in / 10 mm			
Screw			M5			
Screw head			PZ2			
Tightening torque			30.98 lb-in / 3.5 Nm			
Contact reliability			≥17 V; ≥50 mA			
Minimum distance of open contacts			0.118 in / 3.6 mm			
Power dissipation per pole		W	4		8	
Overload current withstand capability:			176		240	
10 s						
Maximum back-up fuse for short-circuit protection gL and gG:	I _v	A	63		80	
coordination type 1 (at prospective current 3 kA)			40		63	
coordination type 2 (at prospective current 3 kA)						

Installation Contactors UL/CSA

up to 63 A



TECHNICAL DATA

Type	Symbol	Unit	IKA440	IKD440	IKA463	IKD463
Maximum back-up fuse for short-circuit protection K5 acc. to UL and CSA	I_v	A	60	60	70	70
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: 230/400 ; UL/CSA: 240 (AC), 250 (DC)			
Rated frequency	f	Hz	50/60			
Thermal current	I_{th}	A	40		63	
Rated operational current for AC-15: single-phase 230 V single-phase 400 V	I_e	A	6 4			
Maximum operating frequency for AC-15		op. c./h	1.200			
Electrical endurance for AC-15		op. c.	150.000			
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 2 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 3 poles in series ... 24 V DC/48 V DC/60 V DC/110 V DC/ 220 V DC 4 poles in series ... 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 6/6/4/1/0.1 6/6/6/3/1 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) flexible	S		4 ... 10 AWG / 1.5... 25 mm ² 4 ... 10 AWG / 1.5... 16 mm ²			
Length of removed wire insulation			0.394 in / 10 mm			
Screw			M5			
Screw head			PZ2			
Tightening torque			30.98 lb-in / 3.5 Nm			
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 maximum			permanent permanent			
Minimum duration between two impulses of control voltage		ms	AC: 150 / DC: 500 (where is applicable)			
Surge immunity withstand voltage 1,2/50 μ s acc. to standard IEC/EN 61000-4-5		kV	2			
Coil consumption: switch-on operation		VA/W	15.4/6 7.7/3	5/5 ¹⁾ 5/5 ¹⁾	15.4/6 7.7/3	5/5 ¹⁾ 5/5 ¹⁾
Delays: make brake		ms	10 ... 20 10 ... 15	15 ... 20 35 ... 45	10 ... 20 10 ... 15	15 ... 20 35 ... 45
Terminal capacity: rigid (solid and stranded) flexible			16 ... 14 AWG / 1 ... 2.5 mm ² 16 ... 14 AWG / 1 ... 2.5 mm ²			
Length of removed wire insulation			0.315 in / 8 mm			
Screw			M3			
Screw head			PZ1			
Tightening torque			5.31 lb-in / 0.6 Nm			
MTTF - Mean time to failure MTTF = $1/\lambda = B10/(0.1 n_{op})$		h	General Use: 2.083 Motor: 3.125			
MTTF _d - Mean time to failure dangerous MTTF _d = $1/\lambda_d = B10_d/(0.1 n_{op})$		h	General Use: 2.777 Motor: 4.166			
B10 - Number of operating cycles until 10 % of devices fail		op. c.	General Use: 75.000 Motor: 112.500			
B10 _d - Number of operating cycles until 10 % of device dangerous		op. c.	General Use: 100.000 Motor: 150.000			
λ - Failure rate $\lambda = (0.1 n_{op})/B10$		1/h	General Use: 0.00048 Motor: 0.00032			
λ_d - Failure rate dangerous $\lambda_d = (0.1 n_{op})/B10_d$		1/h	General Use: 0.00036 Motor: 0.00024			
Ratio of dangerous failures		%	75			
n_{op} - Operating cycles (operating cycles/h)		op. c./h	360			

¹⁾ Coil consumption for -22 and -04 is 6.1 VA/6.1 W

IKN, IKN-UL – Auxiliary switch

TECHNICAL DATA					
	Type	Symbol	Unit	IKN	IKN-UL
GENERAL	Standards			IEC/EN 60947-5-1	UL508, C22.2 No. 14, IEC/EN 60947-5-1
	Approvals			CE, CB, NF, EAC	CE, UL, CSA
	Module width			0.5	0.5
	Number of poles			2	2
	Degree of protection			IP20 ¹⁾	IP20 ¹⁾
	Pollution degree			3	3
	Climatic conditions			95 % relative humidity	
	Ambient temperature:				
	open			-25 °C ... +55 °C	
	closed				-13 °F ... 104 °F / -25 °C ... +40 °C
	Storage temperature			-30 °C ... +80 °C	-22 °F ... 176 °F / -30 °C ... +80 °C
	Maximum altitude		m	2000	2000
	U _i and U _e is reduced for 1.2 % and I _e for 0.4 % for every additional 100 m				
	Mechanical endurance		op. c.	3.000.000	3.000.000
Weight			30 g	0.08 lb / 30 g	
AUXILIARY CIRCUIT	Contact reliability			≥12 V; ≥5 mA	≥12 V; ≥5 mA
	Minimum distance of open contacts			3.6 mm	0.142 in / 3.6 mm
	Power dissipation per pole		W	0.3	0.3 (at I _{th} = 6 A)
	Maximum back-up fuse for short-circuit protection gL and gG: coordination type 2 (at prospective current 3 kA)	I _v	A	6	6
	Maximum back-up fuse for short-circuit protection KS acc. to UL and CSA	I _v	A	6	6
	Rated insulation voltage	U _i	V	500	500
	Rated impulse withstand voltage	U _{imp}	kV	4	4
	Rated operational voltage	U _e	V	230/400	IEC: 230 / 400 UL: C300 (120 VAC, 240 VAC) UL: Q300 (125 VDC, 250 VDC)
	Rated frequency	f	Hz	50/60	50/60
	Thermal current	I _{th}	A	6	IEC: 6; UL: 2.5
	Rated operational current for AC-15:				
	single-phase 230 V	I _e	A	6	6
	single-phase 400 V			4	4
	Electrical endurance for AC-15		op. c.	50.000	50.000
	Switching of auxiliary loads acc. to standard UL and CSA				C300, Q300
	Electrical endurance for auxiliary loads acc. UL and CSA		op. c.		50.000
	Rated operational current for DC-13:				
	1 pole ... 24 VDC / 48 VDC / 60 VDC / 110 VDC / 220 VDC	I _e	A	6/4/1/0.3/0.05	6/4/1/0.3/0.05
	2 poles in series ... 24 VDC / 48 VDC / 60 VDC / 110 VDC / 220 VDC			6/6/4/1/0.1	6/6/4/1/0.1
	Electrical endurance for DC-13		op. c.	50.000	50.000
	Switching of auxiliary loads acc. to standard UL and CSA				C300, Q300
	Electrical endurance for auxiliary loads acc. UL and CSA		op. c.		50.000
	Terminal capacity:				
rigid (solid and stranded)	S		1 ... 2.5 mm ²	16 ... 14 AWG / 1 ... 2.5 mm ²	
flexible			1 ... 2.5 mm ²	16 ... 14 AWG / 1 ... 2.5 mm ²	
Length of removed wire insulation			7 mm	0.276 in / 7 mm	
Screw			M3	M3	
Screw head			PZ1	PZ1	
Tightening torque			0.8 Nm	7.08 lb-in / 0.8 Nm	
SAFETY	MTTF - Mean time to failure		h	833	694
	MTTF = 1/λ = B10/(0.1 n _{op})				
	MTTF _d - Mean time to failure dangerous		h	1.666	1.388
	MTTF _d = 1/λ _d = B10 _d /(0.1 n _{op})				
	B10 - Number of operating cycles until 10 % of devices fail		op. c.	25.000	25.000
	B10 _d - Number of operating cycles until 10 % of device dangerous		op. c.	50.000	50.000
	B10 _d = B10/ratio of dangerous failures				
	λ - Failure rate		1/h	0.0012	0.00144
	λ = (0.1 n _{op})/B10				
λ _d - Failure rate dangerous		1/h	0.0006	0.00072	
λ _d = (0.1 n _{op})/B10 _d					
Ratio of dangerous failures		%	50	50	
n _{op} - Operating cycles (operating cycles/h)		op. c./h	300	360	

¹⁾ IP40 when installed in installation box - distribution boards

Installation Switches IKS-R

Installation Momentary Switches IKS-T

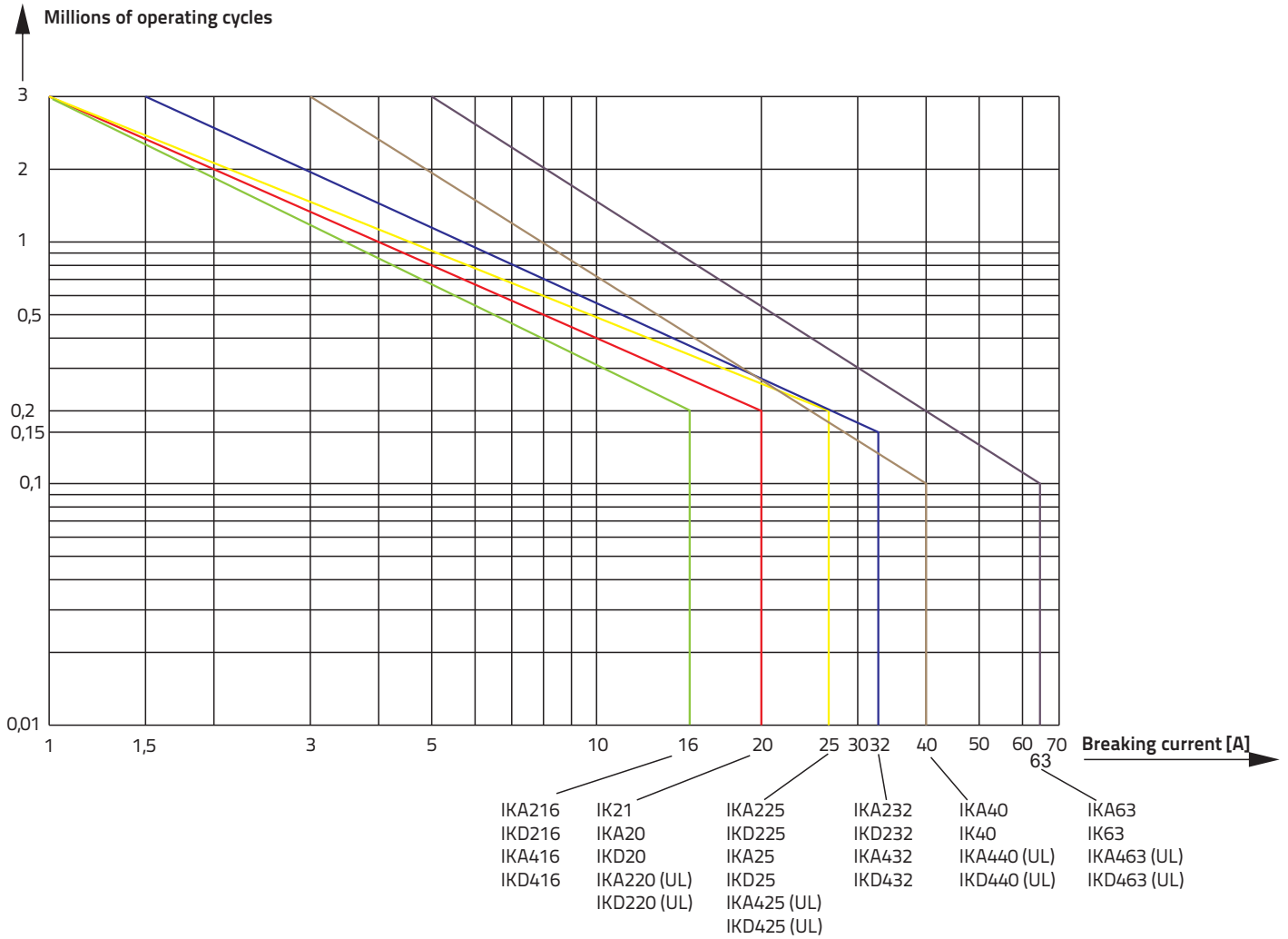


TECHNICAL DATA

	Type	Symbol	Unit	IKS220-R	IKS225-R	IKS232-R	IKS420-R	IKS425-R	IKS432-R
				IKS220-T	IKS225-T	IKS232-T	IKS42-T	IKS425-T	IKS432-T
GENERAL	Standards			IEC/EN 60947-3					
	Approvals			CE					
	Module width			2			4		
	Number of poles			2			4		
	Degree of protection			IP20 (IP40 when installed in installation box - distribution board)					
	Pollution degree			3					
	Climatic conditions			95 % relative humidity					
	Ambient temperature (open)		°C	-25 ... +55					
	Storage temperature		°C	-30... +80					
	Maximum altitude <i>U_i</i> and <i>U_e</i> is reduced for 1.2 % and <i>I_e</i> 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					
	Maximum operating frequency with no load		op. c./h	600					
	Mechanical endurance		op. c.	1.000.000					
	Weight		g	55			105		
MAIN CIRCUIT	Contact reliability			≥17 V; ≥50 mA					
	Minimum distance of open contacts		mm	3,6					
	Power dissipation per pole		W	1.7	2	2.5	1.7	2	2.5
	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>I_v</i>	A	20	25	32	20	25	32
	Rated insulation voltage	<i>U_i</i>	V	440					
	Rated impulse withstand voltage	<i>U_{imp}</i>	kV	4					
	Rated operational voltage	<i>U_e</i>	V	230					
	Rated frequency	<i>f</i>	Hz	50/60					
	Thermal current	<i>I_{th}</i>	A	20	25	32	20	25	32
	Rated operational current for AC-1, AC-7a and AC-21	<i>I_e</i>	A	20	25	32	20	25	32
	Operational power for AC-1, AC-7a and AC-21: single-phase 230 V three-phase 230 V	<i>P_e</i>	kW	4	5.4	7	4	5.4	7
	Maximum operating frequency for AC-1, AC-7a and AC-21		op. c./h	300					
	Electrical endurance for AC-1, AC-7a and AC-21		op. c.	100.000					
	Rated operational current for AC-22	<i>I_e</i>	A	20	25	32	20	25	32
	Operational power for AC-22: single-phase 230 V three-phase 230 V	<i>P_e</i>	kW	3.7	4.6	5.9	3.7	4.6	5.9
	Maximum operating frequency for AC-1, AC-7a and AC-21		op. c./h	300					
	Electrical endurance for AC-1, AC-7a and AC-21		op. c.	50.000					
	Rated operational current for AC-5a (at 230 V)	<i>I_e</i>	A	8.8	11	13	8.8	11	13
	Maximum operating frequency for AC-5a		op. c./h	300					
	Electrical endurance for AC-5a (at 230 V)		op. c.	100.000					
	Rated operational current for AC-5b (at 230 V)	<i>I_e</i>	A	8.8	9.7	11	8.8	9.7	11
	Maximum operating frequency for AC-5b		op. c./h	300					
	Electrical endurance for AC-5b (at 230 V)		op. c.	100.000					
	Rated operational current for AC-6a (at 230 V)	<i>I_e</i>	A	4	4.8	6	4	4.8	6
	Maximum operating frequency for AC-6a		op. c./h	300					
	Electrical endurance for AC-6a (at 230 V)		op. c.	100.000					
	Switching of capacitors AC-6b and AC-7c (at 230 V)	<i>C</i>	µF	30	36	40	30	36	40
	Maximum operating frequency for AC-6b and AC-7c		op. c./h	300					
	Electrical endurance for AC-6b and AC-7c		op. c.	100.000					
	Terminal capacity: rigid (solid and stranded) flexible	<i>S</i>	mm ²	1 ... 10 1 ... 6					
	Length of removed wire insulation		mm	9					
Screw			M3.5						
Screw head			PZ1						
Tightening torque		Nm	1.2						

Diagram 1

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



Installation Contactors

Electrical Endurance

Diagram 2

AC-3/400V/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)

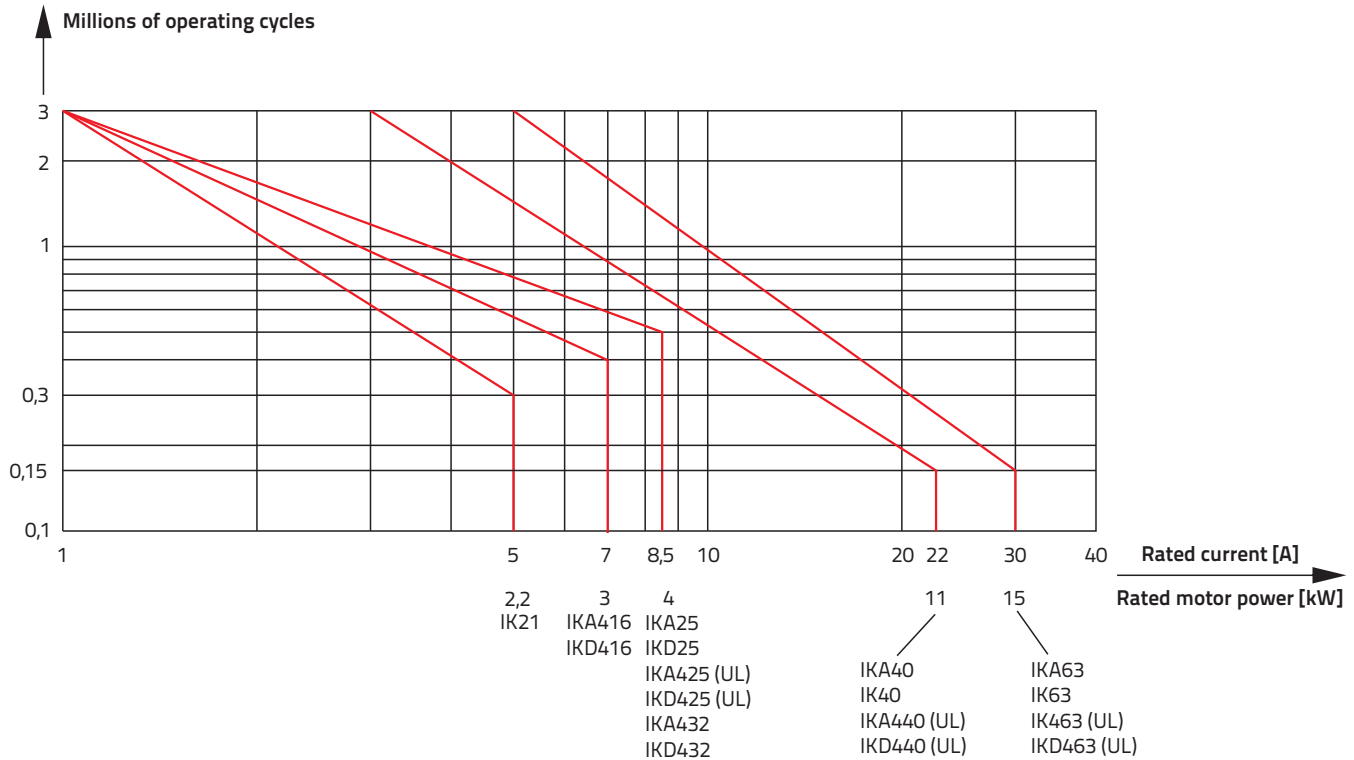
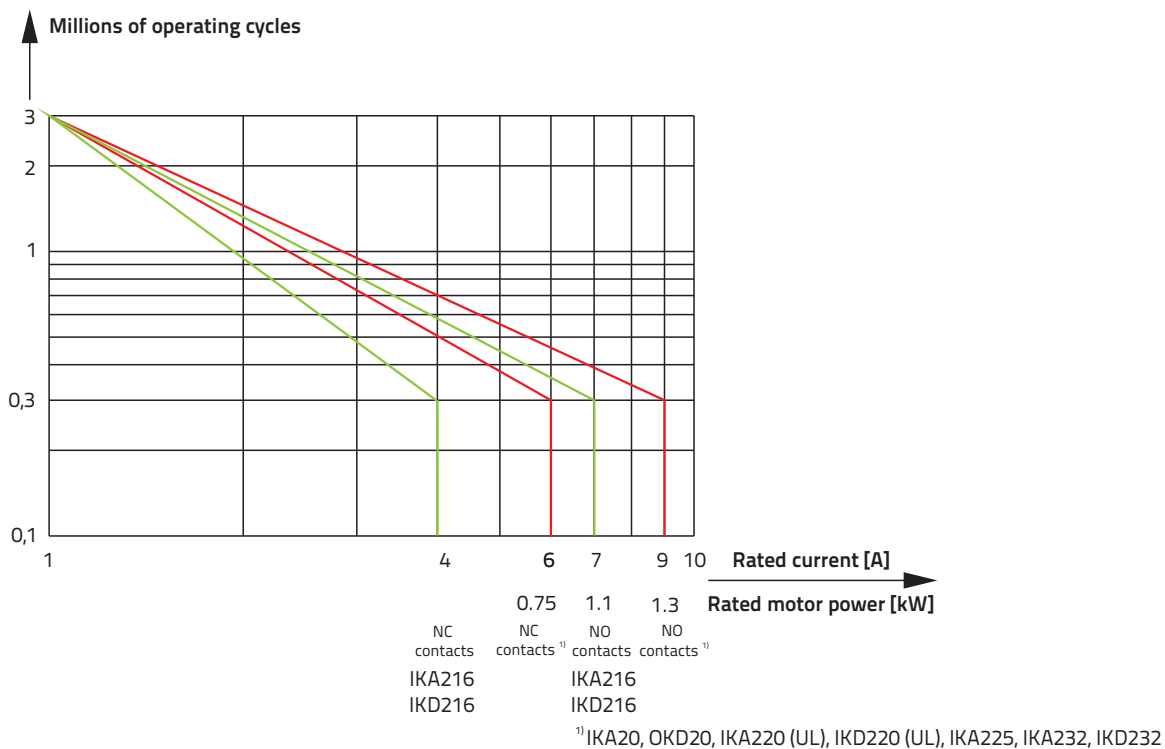
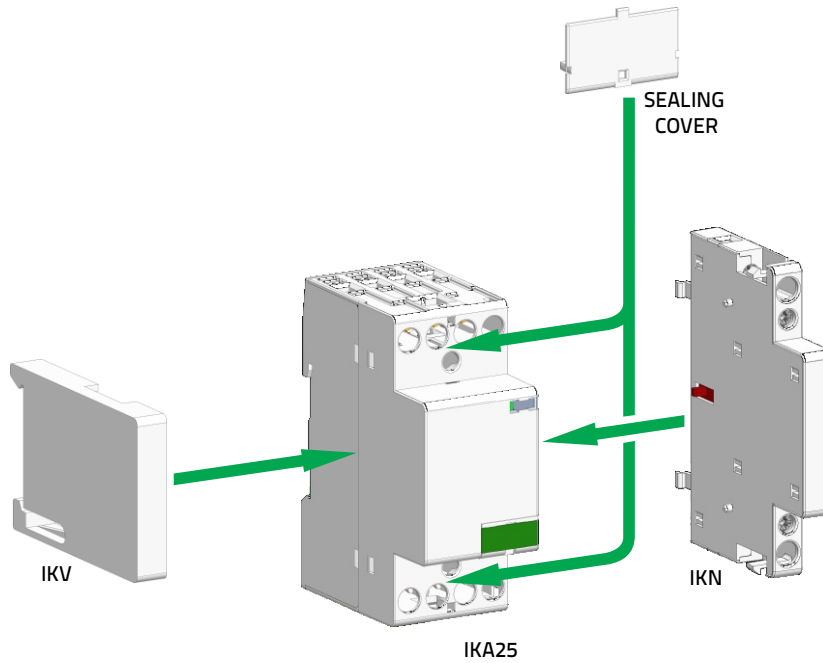


Diagram 3

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



Mounting positions of accessories



Installation Contactors Accessories

Sealing cover for 2-pole, 1 module

Type	Ordering No.	Weight (g)	Packaging (pcs)
IK20-PP		1	2



Sealing cover for 4-pole, 2 modules

Type	Ordering No.	Weight (g)	Packaging (pcs)
IK25-PP		2	2



Sealing cover for 4-pole, 3 modules

Type	Ordering No.	Weight (g)	Packaging (pcs)
IK40/63-PP		3	2



Ventilation modul

Type	Ordering No.	Weight (g)	Packaging (pcs)
IKV		13	1



Auxilliary switch

AC-15 acc. to IEC/EN 60947-5-1 (2-pole, ½ module)

Type	Rated current I _e	Wiring diagram					Weight (g)	Packaging (pcs)
		-20	-11	-01	-10	-02		
IKN20	6 A						30	1
IKN11		33 43	31 43	31	33	31 41	30	
IKN10		--	--	--	--	--	25	
IKNO1		34 44	32 44	32	34	32 42	30	
IKNO2							30	



Auxilliary switch

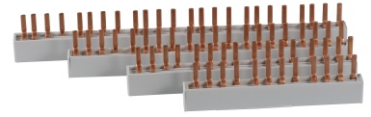
Ratings acc. to UL 508 (2-pole, ½ module)

Type	Rating code	Wiring diagram			Weight (g)	Packaging (pcs)
		-20	-11	-02		
IKN20UL	C300, Q300				30	1
IKN11UL	C300, Q300	33 43	31 43	31 41		
IKNO2UL	C300, Q300	--	--	--		



4-phase busbars for installation contactors up to 32 A - insulated

Type	Module width	Length (mm)	Weight (g)	Ordering No.	Packaging (pcs)
L/32-8P	4	66	60		10
L/32-12P	6	98	86		
L/32-16P	8	138	114		
L/32-20P	10	173	141		
L/32-24P	12	208	169		



Single pin terminals for installation contactors up to 32 A - insulated

Type	Pin length	Cross-section rigid/flexible (mm ²)	Screw	Weight (g)	Packaging (pcs)
S/32-1P	13.5/32 (total)	6-25/4-16	PZ2	12	25



Double pin terminals for installation contactors 40 -63 A - insulated terminals for parallel connection

Type	Pin length	Cross-section rigid/flexible (mm ²)	Screw	Weight (g)	Packaging (pcs)
S/63-2P	15	6-50/4-35	PZ2	22	25

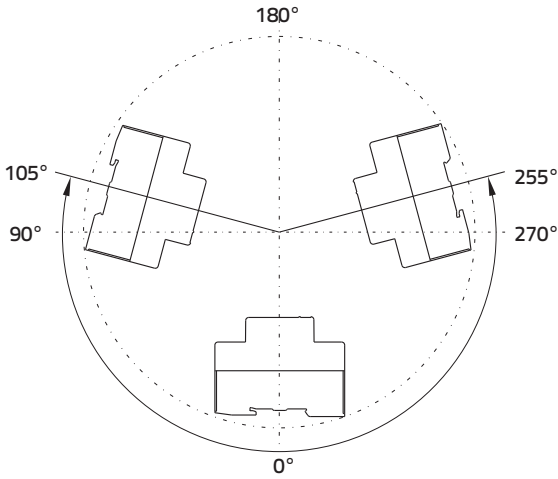


Installation Contactors

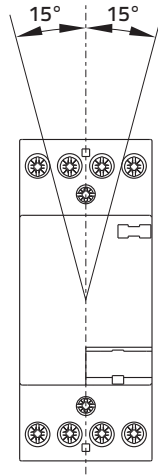
Operating Position, Dimensions

Operation position

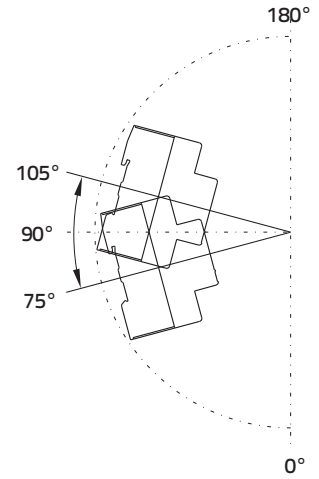
IKA216/20/225/232/ 25/432/ 40/ 63
IKA220/425/ 440/ 463 (UL)



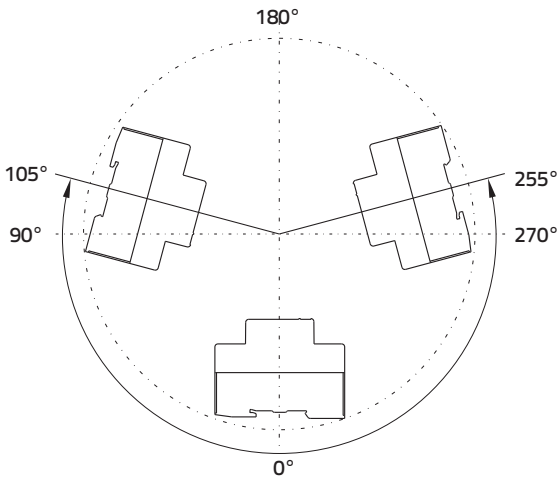
All installation contactors



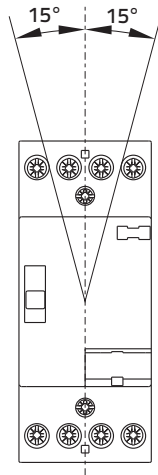
IKD216/20/225/232/ 25/432
IK40/63, IKD220/425/440/463 (UL)



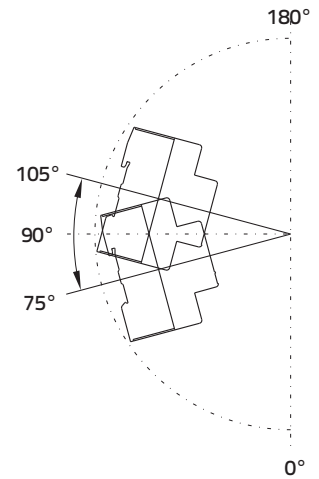
IKA216/20/225/232-R/-T
IKA25/432-R/-T



IKA/D216/20/225/232-R/-T
IKA/D416/25/432-R/-T



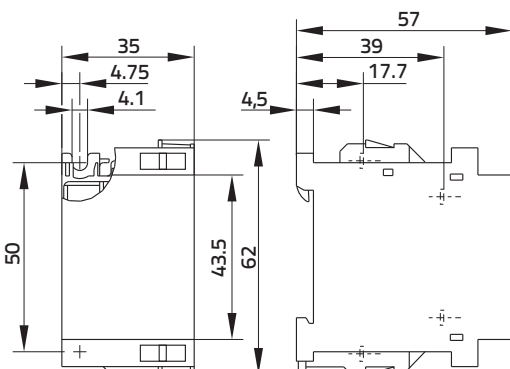
IKD20/225/232-R/-T
IKD25/432-R/-T



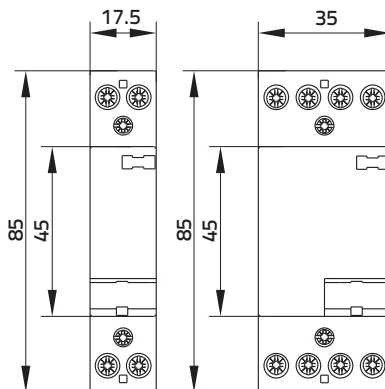
NOTE: IK21 and IKS-R/-T have no limitation

Dimension (in millimeters)

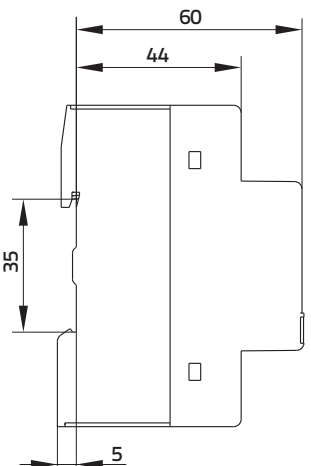
IK21



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

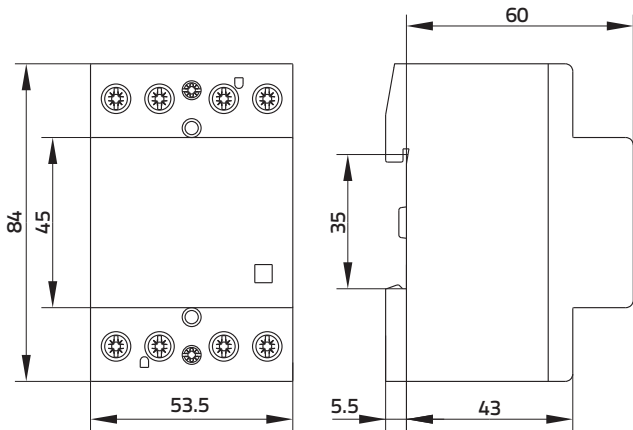


IKA416, IKD416
IKA25, IKD25
IKA432, IKD432



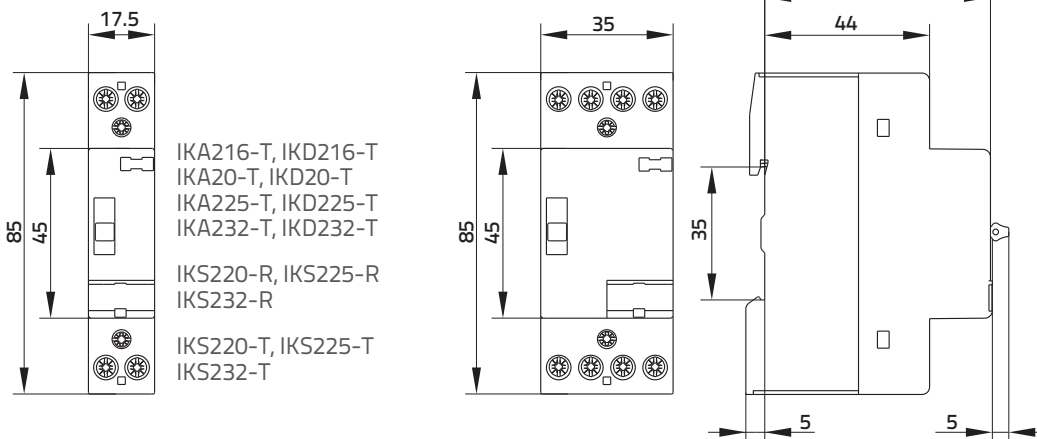
Dimensions (in millimeters unless otherwise stated)

IK40, IK63
IKA40, IKA63



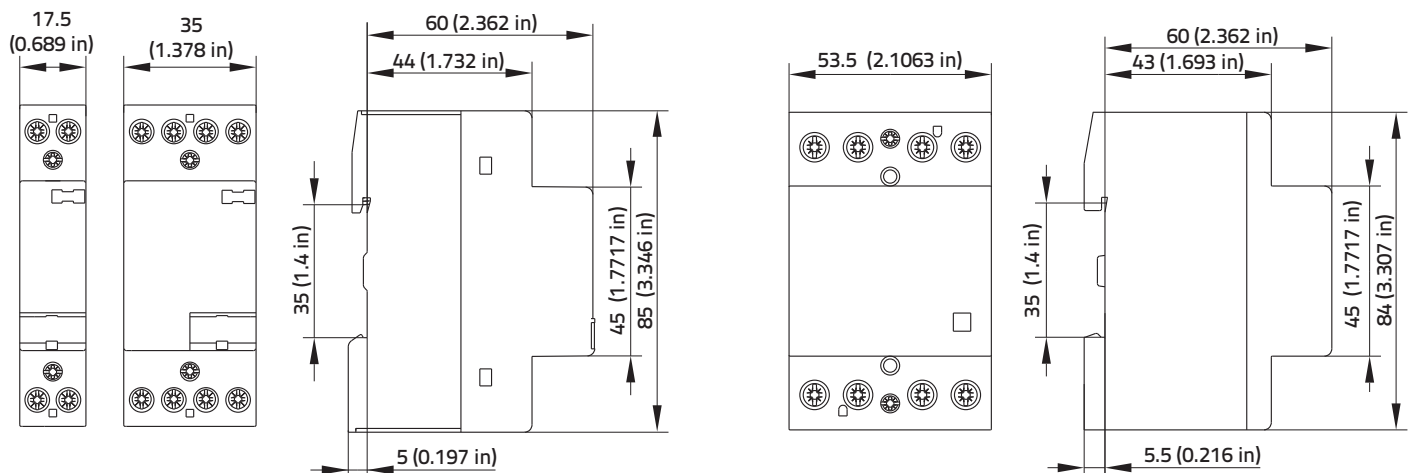
IKA216-R, IKD216-R
IKA20-R, IKD20-R
IKA225-R, IKD225-R
IKA232-R, IKD232-R

IKA416-R, IKD416-R, IKA416-T, IKD416-T
IKA25-R, IKD25-R, IKA25-T, IKD25-T
IKA432-R, IKD432-R, IKA432-T, 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)

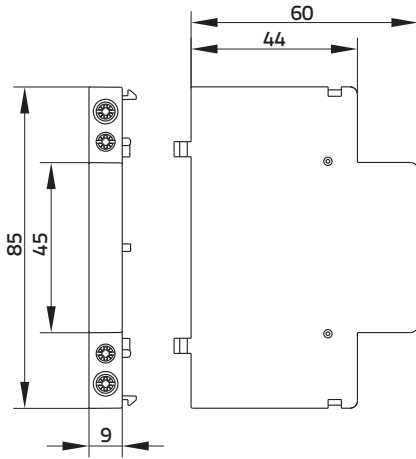


Installation Contactors

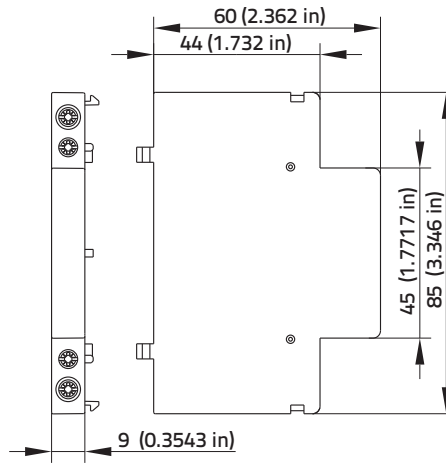
Dimensions

Dimensions (in millimeters unless otherwise stated)

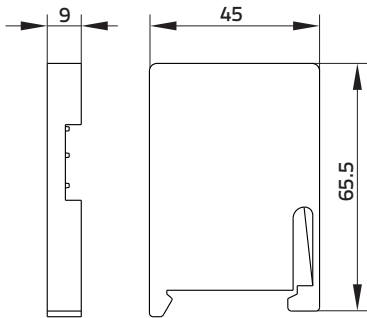
IKN



IKN-UL



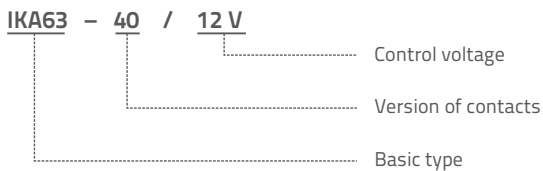
IKV



Ordering data

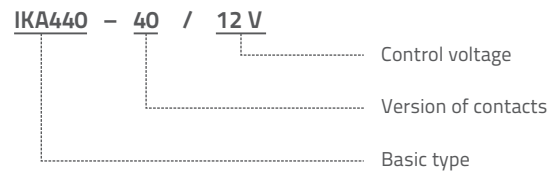
Installation contactors

from 16 A to 63 A



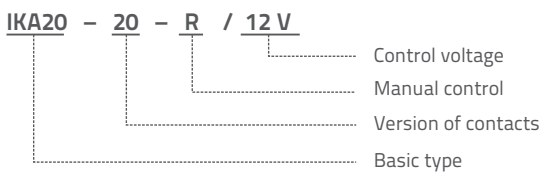
UL/CSA Installation contactors

from 20 A to 63 A



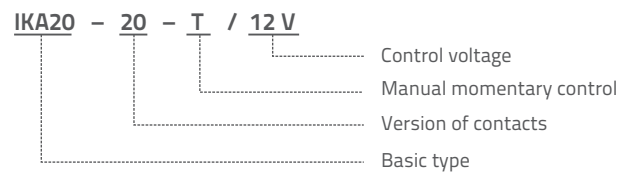
Installation contactors with manual control

up to 32 A



Installation contactors with manual momentary control

up to 32 A





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