

# INSTALLATION CONTACTORS - FROM 16 A UP TO 32 A

AC-1 acc. to IEC/EN 60947-4-1 (2-pole, 1 module)

32 A  
AC/DC

HUM-FREE

Type	Rated current I <sub>n</sub>	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)		
IKD216-20	16 A	230 V AC 220 V DC		30.047.506	130	6		
IKD216-20	16 A	24 V AC/DC		30.047.507	130			
IKD20-20	20 A	230 V AC 220 V DC		30.046.006	130			
IKD20-20	20 A	24 V AC/DC		30.046.024	130			
IKD225-20	25 A	230 V AC 220 V DC		30.046.860	130			
IKD225-20	25 A	24 V AC/DC		30.046.861	130			
IKD232-20	32 A	230 V AC 220 V DC		30.046.862	130			
IKD232-20	32 A	24 V AC/DC		30.046.863	130			
IKD216-11	16 A	230 V AC 220 V DC			30.047.508		130	6
IKD216-11	16 A	24 V AC/DC			30.047.509		130	
IKD20-11	20 A	230 V AC 220 V DC			30.046.011		130	
IKD20-11	20 A	24 V AC/DC			30.046.025		130	
IKD225-11	25 A	230 V AC 220 V DC	30.046.864		130			
IKD225-11	25 A	24 V AC/DC	30.046.865		130			
IKD232-11	32 A	230 V AC 220 V DC	30.046.866		130			
IKD232-11	32 A	24 V AC/DC	30.046.867		130			
IKD216-10	16 A	230 V AC 220 V DC			30.047.510	125	6	
IKD216-10	16 A	24 V AC/DC			30.047.511	125		
IKD20-10	20 A	230 V AC 220 V DC			30.046.868	125		
IKD20-10	20 A	24 V AC/DC			30.046.590	125		
IKD225-10	25 A	230 V AC 220 V DC		30.046.869	125			
IKD225-10	25 A	24 V AC/DC		30.046.870	125			
IKD232-10	32 A	230 V AC 220 V DC		30.046.871	125			
IKD232-10	32 A	24 V AC/DC		30.046.872	125			
IKD216-01	16 A	230 V AC 220 V DC			30.047.512	125		6
IKD216-01	16 A	24 V AC/DC			30.047.513	125		
IKD20-01	20 A	230 V AC 220 V DC			30.046.873	125		
IKD20-01	20 A	24 V AC/DC			30.046.874	125		
IKD225-01	25 A	230 V AC 220 V DC	30.046.875		125			
IKD225-01	25 A	24 V AC/DC	30.046.876		125			
IKD232-01	32 A	230 V AC 220 V DC	30.046.877		125			
IKD232-01	32 A	24 V AC/DC	30.046.878		125			
IKD216-02	16 A	230 V AC 220 V DC			30.047.514	130	6	
IKD216-02	16 A	24 V AC/DC			30.047.515	130		
IKD20-02	20 A	230 V AC 220 V DC			30.046.012	130		
IKD20-02	20 A	24 V AC/DC			30.046.026	130		
IKD225-02	25 A	230 V AC 220 V DC		30.046.879	130			
IKD225-02	25 A	24 V AC/DC		30.046.880	130			
IKD232-02	32 A	230 V AC 220 V DC		30.046.881	130			
IKD232-02	32 A	24 V AC/DC		30.046.882	130			



3

ORDERING DATA

Other control voltages are on request - define type and voltage

# INSTALLATION CONTACTORS - WITH MANUAL CONTROL

UP TO 32 A

AC-1 acc. to IEC/EN 60947-4-1 (2-pole, 1 module)



HUM-FREE



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Type	Rated current I <sub>n</sub>	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)				
IKD216-20-R	16 A	230 V AC 220 V DC		30.047.546	130	6				
IKD216-20-R	16 A	24 V AC/DC		30.047.547	130					
IKD20-20-R	20 A	230 V AC 220 V DC		30.046.381	130					
IKD20-20-R	20 A	24 V AC/DC		30.046.506	130					
IKD225-20-R	25 A	230 V AC 220 V DC		30.046.930	130					
IKD225-20-R	25 A	24 V AC/DC		30.046.931	130					
IKD232-20-R	32 A	230 V AC 220 V DC		30.046.932	130	6				
IKD232-20-R	32 A	24 V AC/DC		30.046.933	130					
IKD216-11-R	16 A	230 V AC 220 V DC			30.047.548		130	6		
IKD216-11-R	16 A	24 V AC/DC			30.047.549		130			
IKD20-11-R	20 A	230 V AC 220 V DC					30.046.507		130	6
IKD20-11-R	20 A	24 V AC/DC					30.046.508		130	
IKD225-11-R	25 A	230 V AC 220 V DC				30.046.934	130		6	
IKD225-11-R	25 A	24 V AC/DC				30.046.935	130			
IKD232-11-R	32 A	230 V AC 220 V DC				30.046.936	130	6		
IKD232-11-R	32 A	24 V AC/DC				30.046.937	130			
IKD216-10-R	16 A	230 V AC 220 V DC				30.047.550	125			6
IKD216-10-R	16 A	24 V AC/DC				30.047.551	125			
IKD20-10-R	20 A	230 V AC 220 V DC				30.046.938	125		6	
IKD20-10-R	20 A	24 V AC/DC				30.046.939	125			
IKD225-10-R	25 A	230 V AC 220 V DC				30.046.940	125	6		
IKD225-10-R	25 A	24 V AC/DC				30.046.941	125			
IKD232-10-R	32 A	230 V AC 220 V DC				30.046.942	125			6
IKD232-10-R	32 A	24 V AC/DC				30.046.943	125			
IKD216-01-R	16 A	230 V AC 220 V DC				30.047.552	125		6	
IKD216-01-R	16 A	24 V AC/DC				30.047.553	125			
IKD20-01-R	20 A	230 V AC 220 V DC				30.046.944	125	6		
IKD20-01-R	20 A	24 V AC/DC				30.046.945	125			
IKD225-01-R	25 A	230 V AC 220 V DC				30.046.946	125			6
IKD225-01-R	25 A	24 V AC/DC				30.046.947	125			
IKD232-01-R	32 A	230 V AC 220 V DC				30.046.948	125		6	
IKD232-01-R	32 A	24 V AC/DC				30.046.949	125			
IKD216-02-R	16 A	230 V AC 220 V DC				30.047.554	130	6		
IKD216-02-R	16 A	24 V AC/DC				30.047.555	130			
IKD20-02-R	20 A	230 V AC 220 V DC				30.046.950	130			6
IKD20-02-R	20 A	24 V AC/DC				30.046.951	130			
IKD225-02-R	25 A	230 V AC 220 V DC				30.046.952	130		6	
IKD225-02-R	25 A	24 V AC/DC				30.046.953	130			
IKD232-02-R	32 A	230 V AC 220 V DC				30.046.954	130	6		
IKD232-02-R	32 A	24 V AC/DC				30.046.955	130			

Other control voltages are on request - define type and voltage

ORDERING DATA

# INSTALLATION CONTACTORS - WITH MANUAL MOMENTARY CONTROL

UP TO 32 A

AC-1 acc. to IEC/EN 60947-4-1 (2-pole, 1 module)



HUM-FREE



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Type	Rated current I <sub>n</sub>	Control voltage	Wiring diagram	Ordering No.	Weight (g)	Packaging (pcs)
IKD216-20-T	16 A	230 V AC 220 V DC		30.047.576	130	6
IKD20-20-T	20 A	230 V AC 220 V DC		30.046.999	130	
IKD225-20-T	25 A	230 V AC 220 V DC		30.047.000	130	
IKD232-20-T	32 A	230 V AC 220 V DC		30.047.001	130	
IKD216-11-T	16 A	230 V AC 220 V DC		30.047.577	130	6
IKD20-11-T	20 A	230 V AC 220 V DC		30.047.002	130	
IKD225-11-T	25 A	230 V AC 220 V DC		30.047.003	130	
IKD232-11-T	32 A	230 V AC 220 V DC		30.047.004	130	
IKD216-10-T	16 A	230 V AC 220 V DC		30.047.578	125	6
IKD20-10-T	20 A	230 V AC 220 V DC		30.047.005	125	
IKD225-10-T	25 A	230 V AC 220 V DC		30.047.006	125	
IKD232-10-T	32 A	230 V AC 220 V DC		30.047.007	125	
IKD216-01-T	16 A	230 V AC 220 V DC		30.047.579	125	6
IKD20-01-T	20 A	230 V AC 220 V DC		30.047.008	125	
IKD225-01-T	25 A	230 V AC 220 V DC		30.047.009	125	
IKD232-01-T	32 A	230 V AC 220 V DC		30.047.010	125	
IKD216-02-T	16 A	230 V AC 220 V DC		30.047.580	130	6
IKD20-02-T	20 A	230 V AC 220 V DC		30.047.011	130	
IKD225-02-T	25 A	230 V AC 220 V DC		30.047.012	130	
IKD232-02-T	32 A	230 V AC 220 V DC		30.047.013	130	

ORDERING DATA

# INSTALLATION CONTACTORS - UP TO 32 A

GENERAL	Type	Symbol	Unit	IKA232 IKA232-R IKA232-T <sup>1)</sup>	IKD232 IKD232-R IKD232-T <sup>1)</sup>	IKA416 IKA416-R IKA416-T <sup>1)</sup>	IKD416 IKD416-R IKD416-T <sup>1)</sup>	IKA25 IKA25-R IKA25-T <sup>1)</sup>	IKD25 IKD25-R IKD25-T <sup>1)</sup>	IKA432 IKA432-R IKA432-T <sup>1)</sup>	IKD432 IKD432-R IKD432-T <sup>1)</sup>
		Standards			IEC/EN 61095, IEC/EN 60947-4-1, IEC/EN 60947-5-1						
	Approvals			CE, CB, EAC		CE, EAC		CE, CB, NF, EAC		CE, CB, EAC	
	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							
	Operating ambient temperature		°C	-25 ... +70 (2NO)				-25 ... +70 (4NO)			
				-15 ... +70 (1NO)				-15 ... +70 (3NO)			
				-15 ... +70 (1NO+1NC) <sup>4)</sup>				-15 ... +70 (3NO+1NC)			
				-15 ... +55 (2NC)				-15 ... +55 (2NO+2NC)			
				-15 ... +55 (1NC)				-15 ... +55 (4NC)			
	Number of contactors or switches side-by-side:										
	≤40 °C			max. 3							
	(40 ... 55) °C			max. 2							
	(55 ... 70) °C			max. 1 (ventilation modules or least 9 mm free space on each side)							
	Storage temperature		°C	-40... +80							
	Maximum altitude		m	2000							
	U <sub>i</sub> and U <sub>e</sub> is reduced for 1.2 % and I <sub>e</sub> for 0.4 % for every additional 100 m										
	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
MAIN CIRCUIT	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 <sub>v</sub>	A	32	32			25	25	32	32
	coordination type 2					16	16				
	Rated insulation voltage	U <sub>i</sub>	V	440							
	Rated impulse withstand voltage	U <sub>imp</sub>	kV	4							
	Rated operational voltage	U <sub>e</sub>	V	400 <sup>2)3)</sup>				400			
	Rated frequency	f	Hz	50/60							
	Max. thermal current up to +55 °C	I <sub>th</sub>	A	32		16		25		32	
	Max. thermal current @ +70 °C	I <sub>th</sub>	A	32	25	16		20		25	
	Rated operational current for AC-1, AC-7a and AC-21	I <sub>e</sub>	A	32		16		25		32	
	Operational power for AC-1, AC-7a and AC-21:										
	single-phase 230 V	P <sub>e</sub>	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 <sub>e</sub>	A	16		10		14		16	
	Operational power for AC-2:										
	single-phase 230 V	P <sub>e</sub>	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 <sub>e</sub>	A	32		16		25		32		
Operational power for AC-22:											
single-phase 230 V	P <sub>e</sub>	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-3e, AC-7b and AC-23	I <sub>e</sub>	A	NO: 9 / NC: 6		7				8,5		
Operational power for AC-3, AC-3e, AC-7b and AC-23:											
single-phase 230 V	P <sub>e</sub>	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		

1) Available approvals only CE and EAC

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

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

4) For IKD232, IKD232-R, IKD232-T ..... -15 ... +55 (1NO+1NC)

# INSTALLATION CONTACTORS - UP TO 32 A

3

	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
<b>AUXILIARY CIRCUIT</b>	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 <sup>2</sup>	1 ... 10							
	flexible			1 ... 6							
	Length of removed wire insulation		mm	9							
	Screw			M3.5							
	Screw head		mm	PZ1							
	Tightening torque			1.2							
<b>COIL</b>	Range of control voltage for switch-on	U <sub>c</sub>	%	85 ... 110							
	Range of control voltage for drop out	U <sub>c</sub>	%	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 <sub>c</sub>	V	12, 24, 48, 120, 230	120, 230	12, 24, 48, 120, 230, 400	120, 230	120, 230, 400	120, 230	120, 230, 400	12, 24, 48, 120, 230
	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 <sub>c</sub> / 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 consumption: switch-on		VA/W	12/10	2.1/2.1	33/25	2.6/2.6 <sup>1)</sup>	33/25	2.6/2.6 <sup>1)</sup>	33/25	2.6/2.6 <sup>1)</sup>
	operation			2.8/1.2	2.1/2.1	5.5/1.6	2.6/2.6 <sup>1)</sup>	5.5/1.6	2.6/2.6 <sup>1)</sup>	5.5/1.6	2.6/2.6 <sup>1)</sup>
	Delays: make		ms	15 ... 25	15 ... 45	10 ... 30	15 ... 45	10 ... 30	15 ... 45	10 ... 30	15 ... 45
	brake			10 ... 30	20 ... 50	10 ... 30	20 ... 70	10 ... 30	20 ... 70	10 ... 30	20 ... 70
	Terminal capacity: rigid (solid and stranded)		mm <sup>2</sup>	1 ... 2.5							
	flexible			1 ... 2.5							
	Length of removed wire insulation		mm	7							
	Screw			M3							
	Screw head			PZ1							
	Tightening torque		Nm	0.6							
<b>SAFETY</b>	MTTF - Mean time to failure MTTF = 1/λ = B10/(0.1 n <sub>op</sub> )	h	AC-1: 3.750	AC-1: 5.000				AC-1: 3.750			
			AC-3: 7.500	AC-3: 12.500							
	MTTF <sub>d</sub> - Mean time to failure dangerous MTTF <sub>d</sub> = 1/λ <sub>d</sub> = B10 <sub>d</sub> /(0.1 n <sub>op</sub> )	h	AC-1: 5.000	AC-1: 6.666				AC-1: 5.000			
			AC-3: 10.000	AC-3: 16.666							
	B10 - Number of operating cycles until 10 % of devices fail	op. c.	AC-1: 112.500 for NO	AC-1: 150.000				AC-1: 112.500			
			AC-3: 225.000	AC-3: 375.000							
	B10 <sub>d</sub> - Number of operating cycles until 10 % of device dangerous B10 <sub>d</sub> = B10/ratio of dangerous failures	op. c.	AC-1: 150.000 for NO	AC-1: 200.000				AC-1: 150.000			
			AC-3: 300.000	AC-3: 500.000							
	λ - Failure rate λ = (0.1 n <sub>op</sub> )/B10	1/h	AC-1: 0.000266 for NO	AC-1: 0.0002				AC-1: 0.000266			
			AC-3: 0.000133	AC-3: 0.00008							
λ <sub>d</sub> - Failure rate dangerous λ <sub>d</sub> = (0.1 n <sub>op</sub> )/B10 <sub>d</sub>	1/h	AC-1: 0.0002 for NO	AC-1: 0.00015				AC-1: 0.0002				
		AC-3: 0.0001	AC-3: 0.00006								
Ratio of dangerous failures	%	75									
n <sub>op</sub> - Operating cycles (operating cycles/h)	op. c./h	300									

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

TECHNICAL DATA

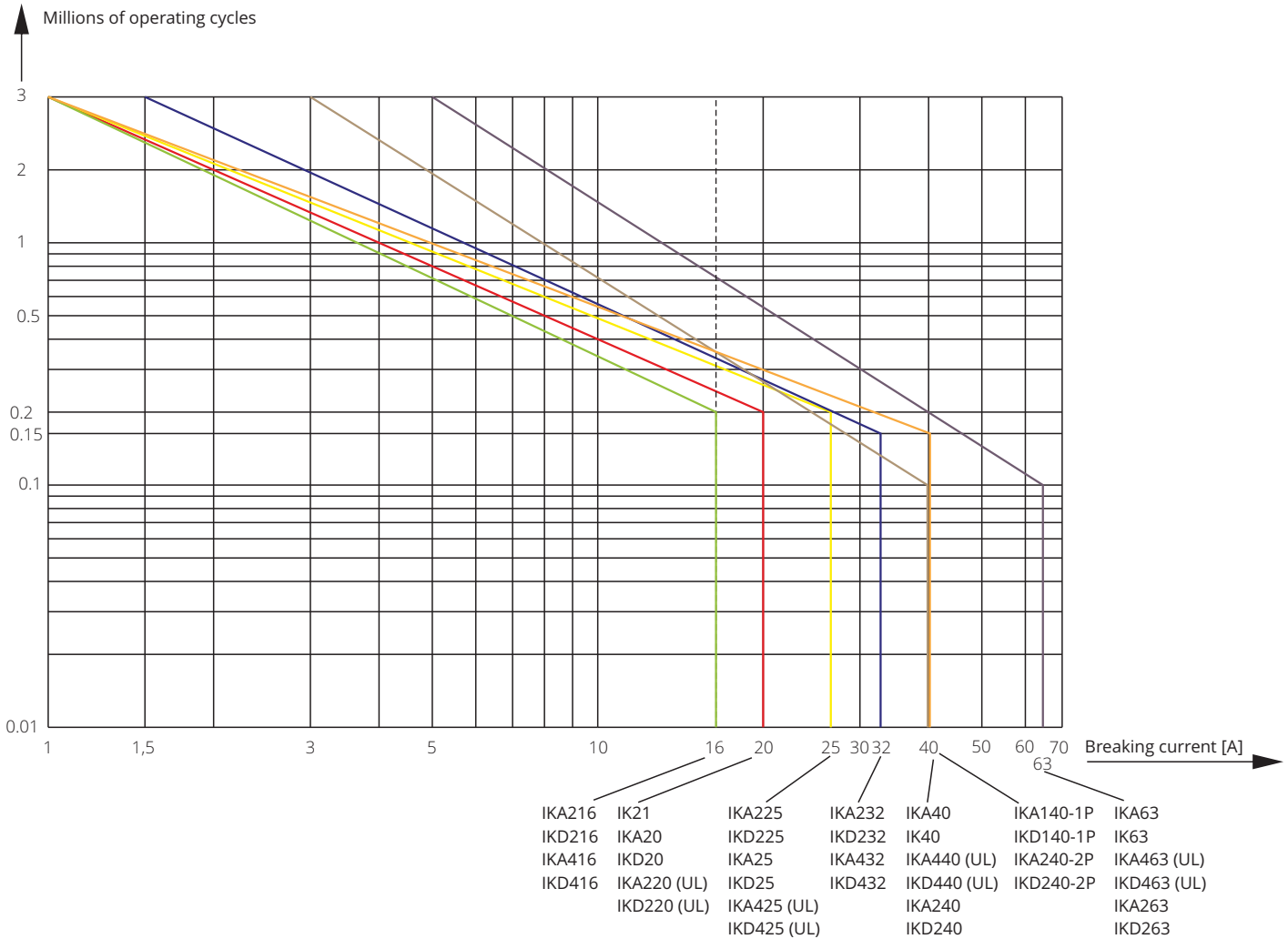
# INSTALLATION CONTACTORS

## 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

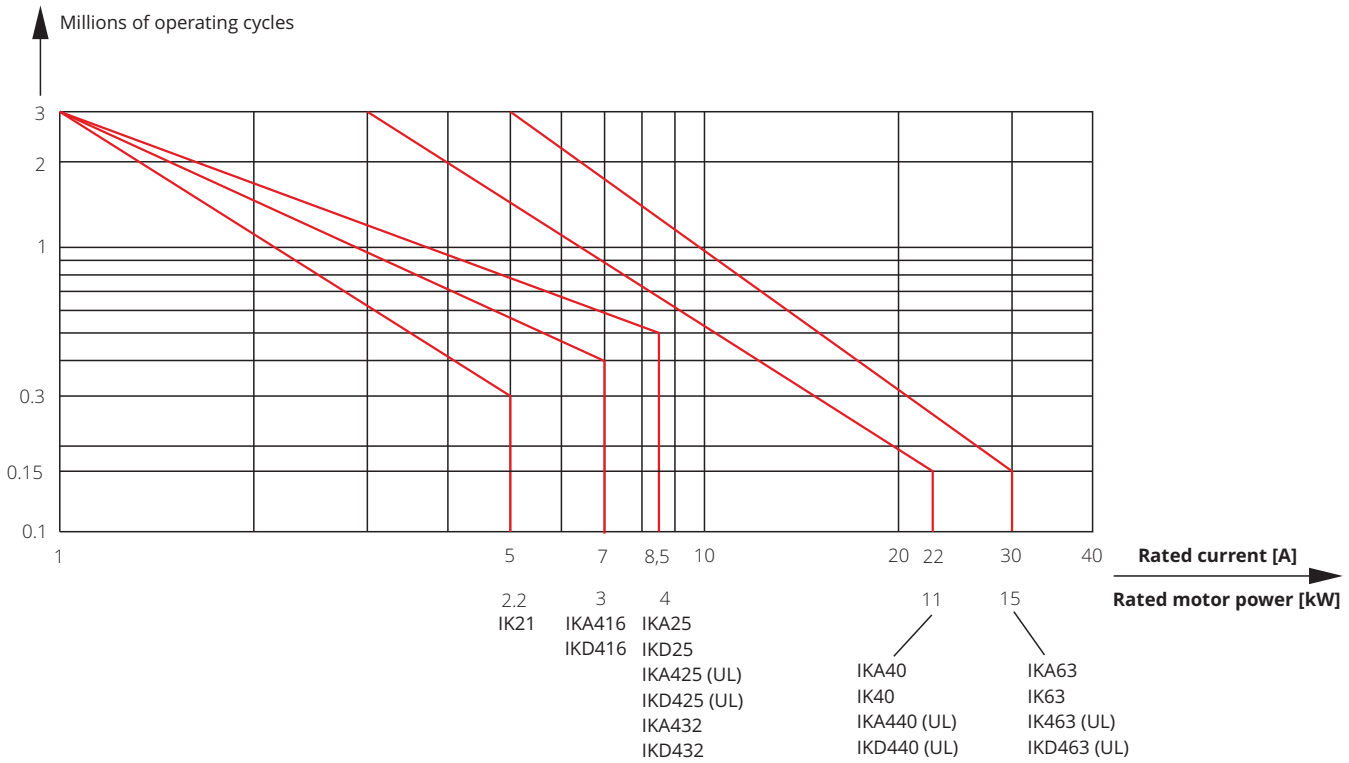


# INSTALLATION CONTACTORS

## Electrical endurance

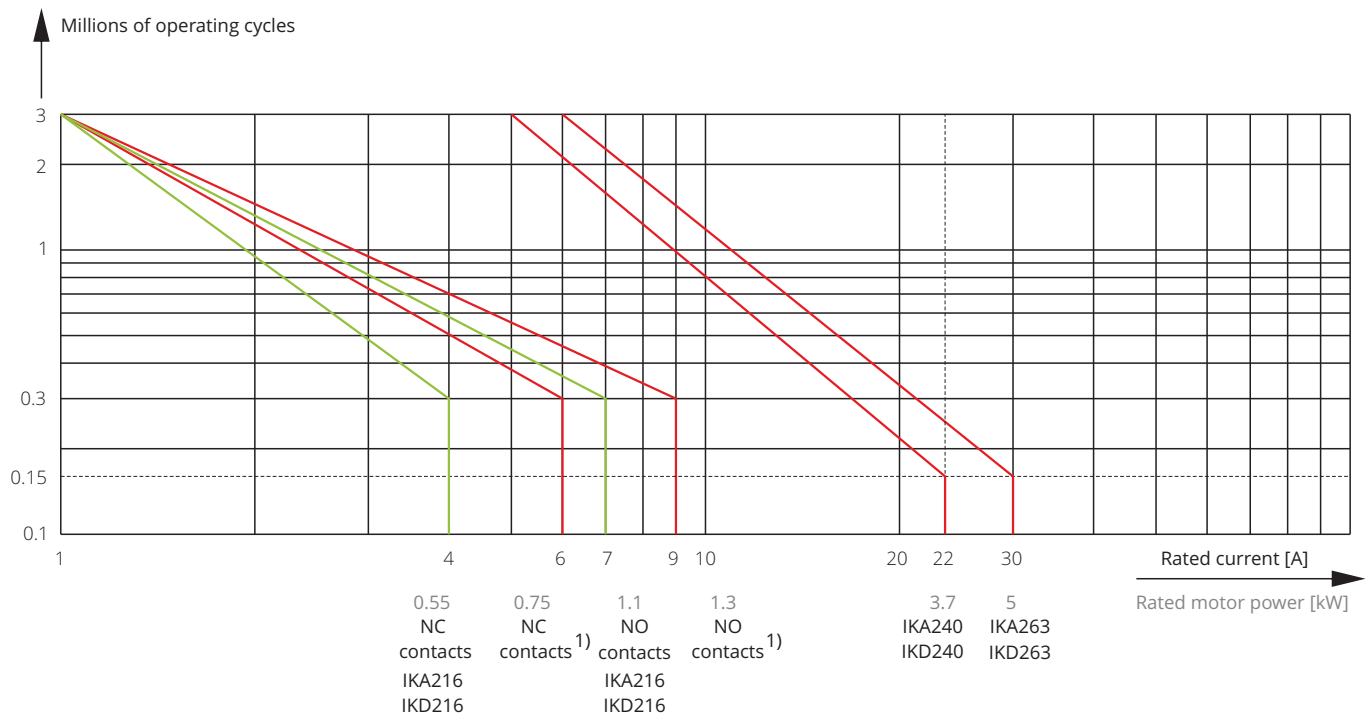
**AC-3, AC-3e/400V/3-phase** for IK21, IKA416, IKD416, IKA25, IKD25, IKA425 (UL), IKD425 (UL), IKA432, IKD432, IKA40, IKA63, IK63, IKA440 (UL), IKD440 (UL), IKA463 (UL), IKD463 (UL)

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

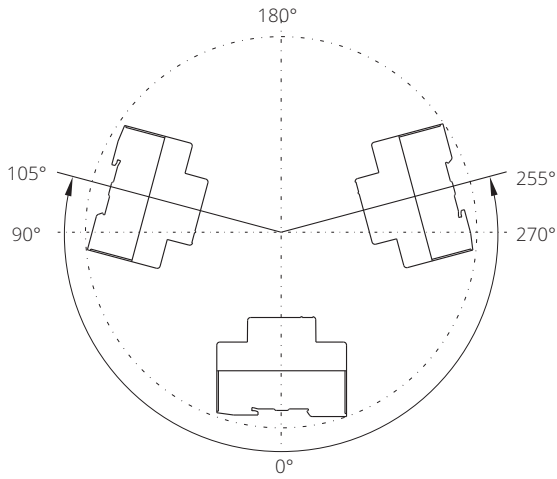


<sup>1)</sup> IKA20, IKD20, IKA220 (UL), IKD220 (UL), IKA225, IKD225, IKA232, IKD232

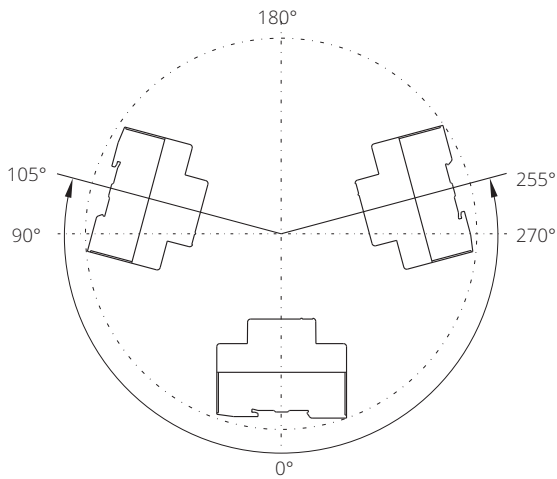
# INSTALLATION CONTACTORS

## Operation position

**IKA216/20/225/232/140/240/25/432/40/63  
IKA220/425/440/463 (UL)**

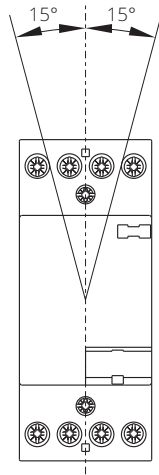


**IKA216/20/225/232-R/-T  
IKA25/432-R/-T**

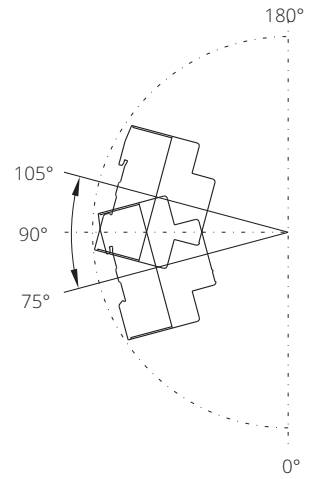


**NOTE:** IK21 and IKS-R/-T have no limitation

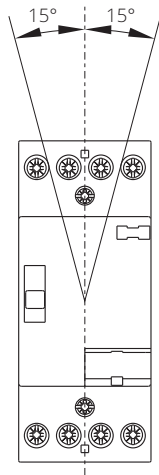
**All installation contactors**



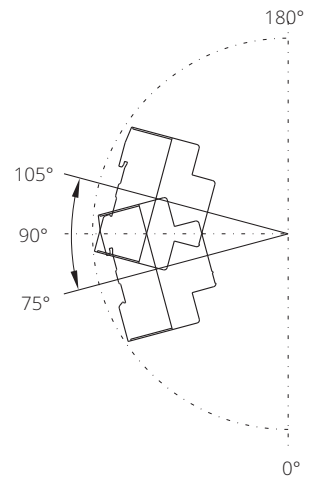
**IKD216/20/225/232/140/240/25/432  
IK40/63, IKD220/425/440/463 (UL)**



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

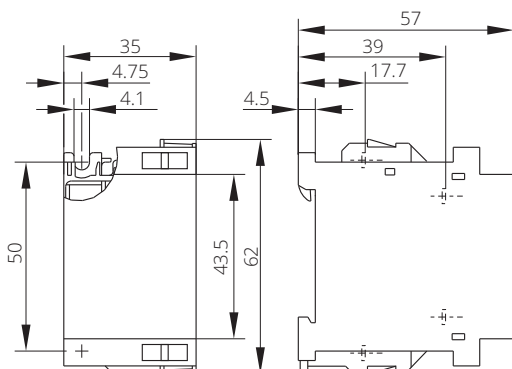


**IKD20/225/232-R/-T  
IKD25/432-R/-T**

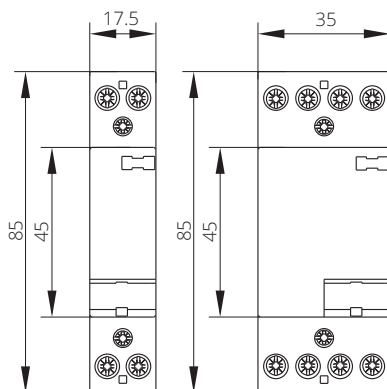


## Dimensions (in millimeters)

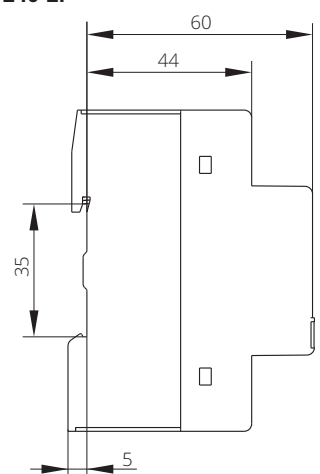
**IK21**



**IKA216, IKD216  
IKA20, IKD20  
IKA225, IKD225  
IKA232, IKD232  
IKA140-1P  
IKD140-1P**



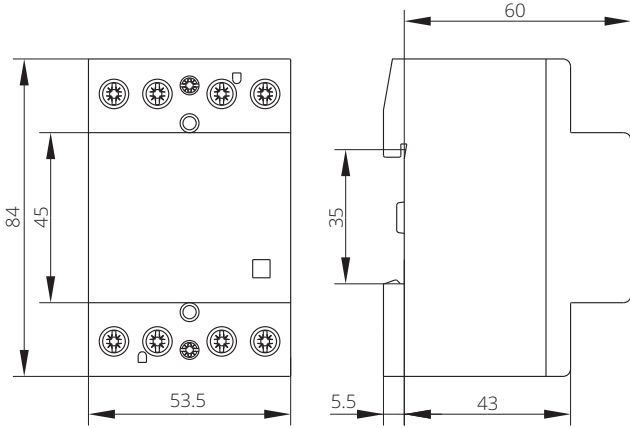
**IKA416, IKD416  
IKA25, IKD25  
IKA25, IKD25  
IKA432, IKD432  
IKA240-2P, IKD240-2P**



# INSTALLATION CONTACTORS

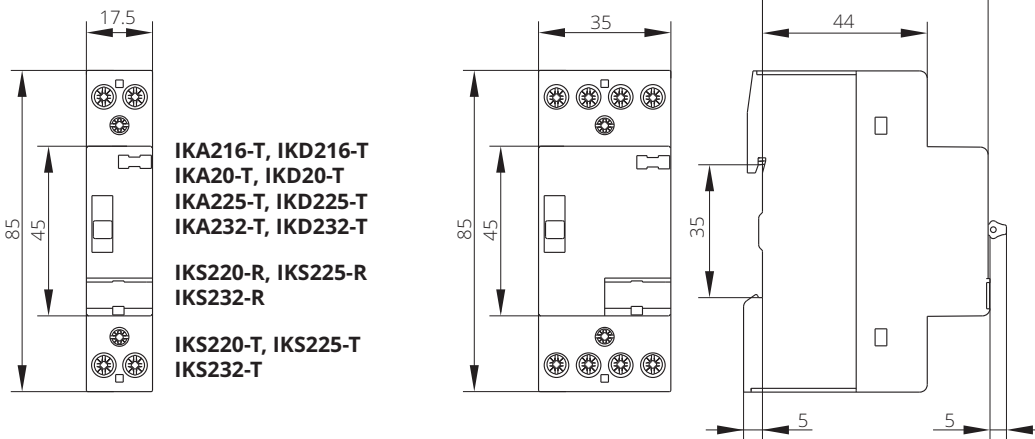
Dimensions (in millimeters unless otherwise stated)

**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), IKD220 (UL)**  
**IKA425 (UL), IKD425 (UL)**

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

