

Mini Motor Contactor

J7KNA

Main contactor

- AC & DC operated
- Integrated auxiliary contacts
- Screw fixing and snap fitting (35 mm DIN rail)
- Range from 4 to 5.5 kW (AC 3 ,380/415V)
- 4 -main pole version (4 kW AC and DC coil)
- Auxiliary contacts suitable for electronic devices (DIN 19240)
- Finger proof (VBG 4)

Accessoires

- 2 and 4 pole additional auxiliary contacts in different configurations
- Mechanical interlock
- Suppressors



Approved Standards

Standard	Guide No (US,C)
UL	NLDX, NLDX7
ICE 947-5-1	
VDE 0660	
EN 60947-5-1	

Ordering Information

■ Model Number Legend

1. Mini Motor Contactors

J7KNA-□□-□□-□□□□

- 1) Mini Contactor
- 2) Rated Motor Current (AC3 400V)
09: 9A
12: 12A
- 3) Integrated auxiliary contact
10: 1 NC 0 NC
01: 0 NO 1NC
4: 4 main pole type (no aux contact)
- 4) Coil voltage (AC operated)
24: AC24V 50/60Hz
48: AC48-50V 50Hz,AC48V 60Hz
60: AC60V 50Hz
90: AC100V 50/60Hz
110: AC110-115V 50Hz,AC120-125V 60Hz
180: AC200V 50/60Hz
230: AC220-230V 50Hz,AC240V 60Hz
240: AC230V-240V 50Hz
400: AC380-400V 50Hz,AC440V 60Hz
415: AC400-415V 50Hz
550: AC525-550V 50Hz,AC600V 60Hz

Coil voltage (DC operated)

- 24D: DC24V
48D: DC48V
110D: DC110V
125D: DC125V
24VS: DC24V with diode
48VS: DC48V with diode
110VS: DC110V with diode
125VS: DC125V with diode

2. Aux. Contact Modules for Mini Motor Contactors

J73KN-□□-□□

- 1) Auxiliary Contact Modules
- 2) AM: for mini motor contactor
- 3) Combination of NO/NC contacts
11: 1 NO 1 NC
02: 0 NO 2 NC
22: 2 NO 2 NC
40: 4 NO 0 NC

■ System overview

Mini Motor Contactors AC Operated

	Ratings			Rated Current		Aux. Contacts		Type	Pack	Weight
	AC2, AC3			AC3	AC1					
	380V 400V 415V kW	500V kW	660V 690V kW	400V A	690V A	NO	NC	Accept Overload Relay see page 52	Coil Voltage ^{*1} 24V 50/60Hz 220-230V 50Hz	pcs. kg/pc.
	3-pole, With Screw Terminals									
	4	4	4	9	20	1	-	J7TKN-A	J7KNA-09-10-□□□□□	10 0.16
	5.5	5.5	5.5	12	20	1	-	J7TKN-A	J7KNA-12-10-□□□□□	10 0.16
	4	4	4	9	20	-	1	J7TKN-A	J7KNA-09-01-□□□□□	10 0.16
	5.5	5.5	5.5	12	20	-	1	J7TKN-A	J7KNA-12-01-□□□□□	10 0.16
	4-pole, With Screw Terminals									
	4	4	4	9	20	-	-	J7TKN-A	J7KNA-09-4-□□□□□	

*1) Other coil voltages see page 14

DC Solenoid Operated

	Ratings			Rated Current		Aux. Contacts		Type	Pack	Weight
	AC2, AC3			AC3	AC1					
	380V 400V 415V kW	500V kW	660V 690V kW	400V A	690V A	NO	NC	Accept Overload Relay see page 52	DC Coil Voltage 24V 50/60Hz 24V 50/60Hz w. diode ^{*2}	pcs. kg/pc.
	3-pole, With Screw Terminals									
	4	4	4	9	20	1	-	J7TKN-A	J7KNA-09-10-□□□□D(-VS)	10 0.19
	5.5	5.5	5.5	12	20	1	-	J7TKN-A	J7KNA-12-10-□□□□D(-VS)	10 0.19
	4	4	4	9	20	-	1	J7TKN-A	J7KNA-09-01-□□□□D(-VS)	10 0.19
	5.5	5.5	5.5	12	20	-	1	J7TKN-A	J7KNA-12-01-□□□□D(-VS)	10 0.19
	4-pole, With Screw Terminals									
	4	4	4	9	20	-	-	J7TKN-A	J7KNA-09-4-□□□□D(-VS)	

*1) with built-in coil suppressor (varistor)

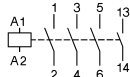
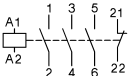
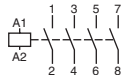
*2) with built-in coil suppressor (diode with zener diode)

Auxiliary contact blocks with screw terminals for contactors J7KNA-09... and J7KNA-12...

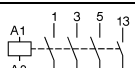
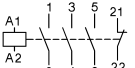
	Contacts		Rated Current		Thermal Rated Current	Type	Pack	Weight
	NO	NC	AC15 230V A	400V A				
	1	1	3	2	10	J73KN-AM-11	10	0.04
	-	2	3	2	10	J73KN-AM-02	10	0.04
	2	2	3	2	10	J73KN-AM-22	10	0.04

System overview

Mini Motor Contactors AC Operated

Wiring Diagrams	Distinc. Number according to DIN EN 50012	Auxiliary Contact Blocks			Contactor with Auxiliary Contact Block			Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Positively guided contacts
		Type	NO	NC	Distinc. Number according to DIN EN 50012	NO	NC	
3-pole, With Screw Terminals								
	10	J73KN-AM-11	1	1	21	2	1	Preferred combinations according to DIN EN 50012
		J73KN-AM-02	0	2	12	1	2	
		J73KN-AM-22	2	2	32	3	2	
	01	J73KN-A-11	1	1	-	1	2	Contacts according to DIN EN 50005
		J73KN-A-02	0	2	-	0	3	
		J73KN-A-40	4	0	-	4	1	
		J73KN-A-22	2	2	-	2	3	
4-pole, With Screw Terminals								
	00	J73KN-A-11	1	1	-	1	1	Contacts according to DIN EN 50005
		J73KN-A-02	0	2	-	0	2	
		J73KN-A-40	4	0	-	4	0	
		J73KN-A-22	2	2	-	2	2	

DC Solenoid Operated

Wiring Diagrams	Distinc. Number according to DIN EN 50012	Auxiliary Contact Blocks			Contactor with Auxiliary Contact Block			Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Positively guided contacts
		Type	NO	NC	Distinc. Number according to DIN EN 50012	NO	NC	
3-pole, With Screw Terminals								
	10	J73KN-AM-11	1	1	21	2	1	Preferred combinations according to DIN EN 50012
		J73KN-AM-02	0	2	12	1	2	
		J73KN-AM-22	2	2	32	3	2	
	01	J73KN-A-11	1	1	-	1	2	Contacts according to DIN EN 50005
		J73KN-A-02	0	2	-	0	3	
		J73KN-A-40	4	0	-	4	1	
		J73KN-A-22	2	2	-	2	3	

Auxiliary contact blocks with screw terminals for contactors J7KNA-09... and J7KNA-12...

Wiring Diagrams							Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Positively guided contacts
J73KN-AM-11	J73KN-AM-02	J73KN-AM-22	J73KN-A-11	J73KN-A-02	J73KN-A-40	J73KN-A-22	

Specifications

■ Coil Voltages

Suffix to contactor type e.g. J7KNA-09-10-24	Voltage Marking		Rated Control Voltage U _s			
	at the coil		range for 50Hz		60Hz	
	for 50Hz V	for 60Hz V	min V.	max V.	min V.	max V.
12	12	12	11	12	12	12
24	24	24	22	24	24	24
42	42	42	38.5	42	42	42
90	90-95	100-105	90	95	100	105
95	95-100	105-110	95	100	105	110
100	100	110-115	100	105	110	115
105	105-110	115-120	105	110	115	120
110	110-115	120-125	110	115	120	125
200	200	210-220	195	205	210	220

Suffix to contactor type e.g. J7KNA-09-10-230	Voltage Marking		Rated Control Voltage U _s			
	at the coil		range for 50Hz		60Hz	
	for 50Hz V	for 60Hz V	min V.	max V.	min V.	max V.
210	205-215	220-230	205	215	220	230
220	210-220	230-240	210	220	230	240
230	220-230	240	220	230	240	250
240	230-240		230	240	250	260
400	380-400	440	380	400	415	440
500	475-500	520-545	475	500	520	545
550	525-550	600	525	550	570	600

Standard voltages in bold type letters. Coil not exchangeable

■ Engineering data and Characteristics

Mini Motor Contactors

Data according to IEC 947-4-1, VDE 0660, EN 60947-4-1

Main Contacts	Type	J7KNA-09-...	J7KNA-12-...
Rated insulation voltage U_i	V AC	690 ⁽¹⁾	690 ⁽¹⁾
Making capacity I_{eff} at $U_e = 690V$ AC	A	165	165
Breaking capacity I_{eff} 400V AC	A	100	100
$\cos\phi = 0,65$ 500V AC	A	90	90
690V AC	A	80	80
Utilization category AC1			
Switching of resistive load			
Rated operational current $I_e (=I_{th})$ at 40°C, open	A	20	20
Rated operational power of three-phase resistive loads 230V 50-60Hz, $\cos\phi = 1$	kW	7.9	7.9
	240V kW	8.3	8.3
	400V kW	13.8	13.8
	415V kW	14.3	14.3
Rated operational current $I_e (=I_{the})$ at 60°C, enclosed	A	16	16
Rated operational power of three-phase resistive loads 230V 50-60Hz, $\cos\phi = 1$	kW	6.3	6.3
	240V kW	6.7	6.7
	400V kW	11	11
	415V kW	11.5	11.5
Minimum cross-section of conductor at load with $I_e (=I_{th})$	mm ²	2.5	2.5
Utilization category AC2 and AC3			
Switching of three-phase motors			
Rated operational current I_e open and enclosed	220V A	12	15
	230V A	11.5	14.5
	240V A	11	14
	380-400V A	9	12
	415-440V A	8	11
	500V A	7	9
	660-690V A	5	6.5
Rated operational power of three-phase motors 220-240V 50-60Hz	kW	3	4
	380-440V kW	4	5.5
	500-690V kW	4	5.5
Utilization category AC4			
Switching of squirrel cage motors, inching			
Rated operational current I_e open and enclosed	220V A	12	15
	230V A	11.5	14.5
	240V A	11	14
	380-400V A	9	12
	415-440V A	8	11
	500V A	7	9
	660-690V A	5	6.5
Rated operational power of three-phase motors 220-240V 50-60Hz	kW	3	4
	380-440V kW	4	5.5
	500-690V kW	4	5.5

Mini Motor Contactors

Data according to IEC 947-4-1, VDE 0660, EN 60947-4-1

Main Contacts			Type	J7KNA-09-...	J7KNA-12-...
Utilization category DC1					
Switching of resistive load	1 pole	24V	A	20	20
Time constant L/R ≤1ms		60V	A	20	20
Rated operational current I _o		110V	A	5	5
		220V	A	0.6	0.6
	3 poles in series	24V	A	20	20
		60V	A	20	20
		110V	A	20	20
		220V	A	16	16
Utilization category DC3 and DC5					
Switching of shunt motors	1 pole	24V	A	20	20
and series motors		60V	A	5	5
Time constant L/R ≤15ms		110V	A	1	1
Rated operational current I _o		220V	A	0.15	0.15
	3 poles in series	24V	A	20	20
60V		A	20	20	
110V		A	20	20	
220V		A	2	2	
Maximum ambient temperature					
Operation	open	°C	-40 to +60 (+90) ^{*2}		
	enclosed	°C	-40 to +40		
with thermal overload relay	open	°C	-25 to +60		
	enclosed	°C	-25 to +40		
Storage		°C	-50 to +90		
Short circuit protection					
for contactors without thermal overload relay					
Coordination-type "1" according to IEC 947-4-1					
Contact welding without hazard of persons	gL (gG)	A	40	40	
max. fuse size					
Coordination-type “2” according to IEC 947-4-1					
Light contact welding accepted	gL (gG)	A	25	25	
max. fuse size					
Contact welding not accepted	gL (gG)	A	10	10	
max. fuse size					
For contactors with thermal overload relay the device with the smaller admissible backup fuse (contactor or thermal overload relay) determines the fuse size.					
Cable cross-sections					
for contactors without thermal overload relay					
main connector	solid or stranded	mm²	0.5 - 2.5	0.5 - 2.5	
	flexible	mm²	0.5 - 2.5	0.5 - 2.5	
	flexible with multicore cable end	mm²	0.5 - 1.5	0.5 - 1.5	
Cables per clamp			2	2	
	solid or stranded	AWG	18 - 14	18 - 14	

Mini Motor Contactors

Data according to IEC 947-4-1, VDE 0660, EN 60947-4-1

Main Contacts		Type	J7KNA-09-...	J7KNA-12-...
Frequency of operations z	without load	1/h	10000	10000
Contactors without thermal overload relay	AC3, I _e	1/h	600	700
	AC4, I _e	1/h	120	150
	DC3, I _e	1/h	600	700
Mechanical life AC operated	S x	10 ⁶	5	5
DC operated	S x	10 ⁶	15	15
Short time current	10s-current	A	96	120
Power loss per pole	at I _e /AC3 400V	W	0.15	0.25
Resistance to shock according to IEC 68-2-27				
Shock time 20ms sine-wave				
AC operated	NO	g	5	5
	NC	g	5	5
DC operated	NO	g	8	8
	NC	g	6	6

*1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): U_{imp} = 8kV.
Data for other conditions on request.

*2) With reduced control voltage range 0.9 up to 1.0 x U_s and with reduced rated current I_e/AC1 according to I_e/AC3

Mini Motor Contactors

Data according to IEC 947-5-1, VDE 0660, EN 60947-5-1

Auxiliary Contacts		Type	J7KNA-09... J7KNA-12...	J7KNA-09...D(VS) J7KNA-12...D(VS)	J73KN-A...
Rated insulation voltage U_i		V AC	690 ^{*1}	690 ^{*1}	690 ^{*1}
Thermal rated current I_{th} to 690V					
Ambient temperature	40°C	A	10	10	10
	60°C	A	6	6	6
Power loss per pole	at I_{th}	W	0.5	0.5	0.5
Utilization category AC15					
Rated operational current I_o	220-240V	A	3	3	3
	380-415V	A	2	2	2
	440V	A	1.6	1.6	1.6
	500V	A	1.2	1.2	1.2
	660-690V	A	0.6	0.6	0.6
Utilization category DC13					
Rated operational current I_o	60V	A	2	2	2
	110V	A	0.4	0.4	0.4
	220V	A	0.1	0.1	0.1
Maximum ambient temperature					
Operation	open	°C	-40 to +60 (+90) ^{*2}		
	enclosed	°C	-40 to +40		
Storage		°C	-40 to +90		
Short circuit protection					
short-circuit current 1kA, contact welding not accepted					
max. fuse size	gL (gG)	A	20	20	20
For contactors with thermal overload relay the device with the smaller admissible control fuse (contactor or thermal overload relay) determines the fuse size.					
Power consumption of coils					
AC operated	inrush	VA	25	-	-
	sealed	VA	4 - 5	-	-
		W	1.2	-	-
DC operated	inrush	W	-	2.5	-
	sealed	W	-	2.5	-
Operation range of coils			19 - 30V DC		
in multiples of control voltage U_s			0.85 - 1.1	0.8 - 1.1	-
Switching time at control voltage $U_s \pm 10\%$ ^{*3,*4}					
AC operated	make time	ms	15 - 25	-	-
	release time	ms	8 - 25	-	-
	arc duration	ms	10 - 15	-	-
DC operated	make time	ms	-	15 - 19	-
	release time	ms	-	8 - 25	-
	arc duration	ms	-	10 - 15	-

Mini Motor Contactors

Data according to IEC 947-5-1, VDE 0660, EN 60947-5-1

Auxiliary Contacts	Type	J7KNA-09... J7KNA-12...	J7KNA-09...D(VS) J7KNA-12...D(VS)	J73KN-A...
Cable cross-section				
all connectors	solid	mm ² 0.75 - 2.5	0.75 - 2.5	0.75 - 2.5
	flexible	mm ² 0.75 - 2.5	0.75 - 2.5	0.75 - 2.5
	flexible with multicore cable end	mm ² 0.5 - 1.5	0.5 - 1.5	0.5 - 2.5
Clamps per pole		2	2	2
	solid or stranded	AWG 18 - 14	18 - 14	18 - 14

*1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$.
Data for other conditions on request.

*2) With reduced control voltage range 0.9 up to $1.0 \times U_s$ and with reduced thermal rated current I_{th} to $I_e/AC15$

*3) Summary switching time = release time + arc duration

*4) Release time of NC make time of NO increase when suppressor units for voltage peak protection are used (Varistor, RC-units, Diode units).

Mini Contactors for North America

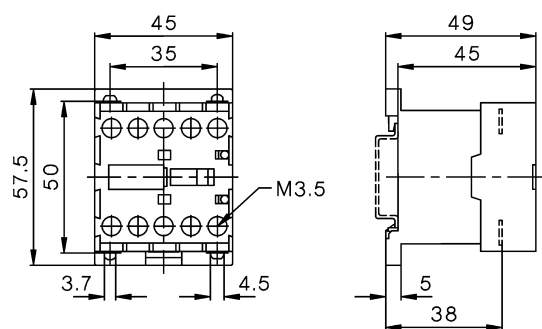
Data according to UL508

Main Contacts (cULus)	Type	J7KNA-09...	J7KNA-12	J73KN-A...
Rated operational current "General Use"	A	15	20	10
Rated operational power of three-phase motors at 60Hz (3ph)	115V hp	1½	2	-
	200V hp	3	3	-
	230V hp	3	3	-
	460V hp	5	7½	-
	575V hp	7½	10	-
Rated operational power of AC motors at 60Hz (1ph)	115V hp	½	¾	-
	200V hp	1	1½	-
	230V hp	1½	2	-
Fuses	A	30	30	-
Suitable for use on a capability of delivering not more than rms	A	5000	5000	-
	V	600	600	-
	V AC	600	600	600
Auxiliary Contacts (cULus)				
heavy pilot duty	AC	A600	A600	A600
standard pilot duty	DC	Q600	Q600	Q600

■ Dimensions

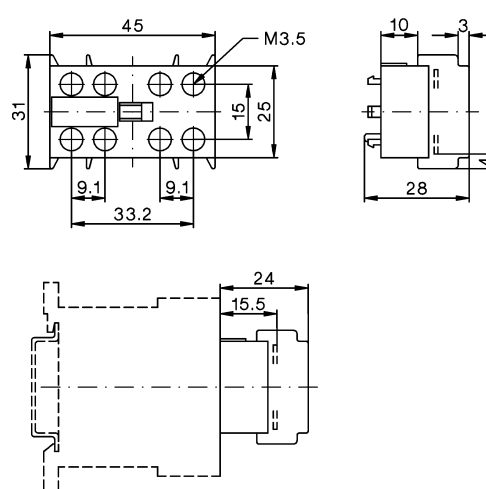
AC and DC operated
with screw terminals

J7KNA-09...
J7KNA-12...



Auxiliary Contact Blocks

J73KN-A...



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.