THE DATASHEET OF

J7KNA-09-10 230

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 2 3 4

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 2 3

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 AC2, AC3			Rated Current AC3	AC1	Aux. Contacts			Type		Pack	Weight
	380V **400V** **415V** **kW**	500V kW	660V 690V kW	400V A	690V A	NO	NC	Accept Overlod 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 AC2, AC3			Rated Current AC3	AC1	Aux. Contacts			Type		Pack	Weight
	380V **400V** **415V** **kW**	500V kW	660V 690V kW	400V A	690V A	NO	NC	Accept Overlod 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

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

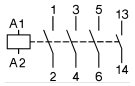
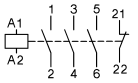
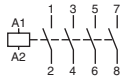
Auxiliary contact blocks with screw terminals for contactors J7KNA-09... and J7KNA-12...

	Contacts NO	NC	Rated Current AC15 230V A	400V A	Thermal Rated Current A	Type	Pack pcs.	Weight kg/pc.
	**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

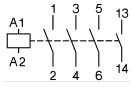
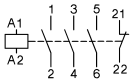
■ System overview

Mini Motor Contactors

AC Operated

Wiring Diagrams	Distinc. Number according to DIN EN 50012	Auxiliary Contact Blocks Type	NO	NC	Contactor with Auxiliary Contact Block Distinc. Number according to DIN EN 50012	NO	NC	Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Positively guided contacts
3-pole, With Screw Terminals								
	10	**J73KN-AM-11**	1	1	21	2	1	Prefered 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 Type	NO	NC	Contactor with Auxiliary Contact Block Distinc. Number according to DIN EN 50012	NO	NC	Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Positively guided contacts
3-pole, With Screw Terminals								
	10	**J73KN-AM-11**	1	1	21	2	1	Prefered 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.	Voltage Marking at the coil		Rated Control Voltage U_s range for 50Hz		60Hz	
J7KNA-09-10-24	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.	Voltage Marking at the coil		Rated Control Voltage U_s range for 50Hz		60Hz	
J7KNA-09-10 -230	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
cosφ = 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	kW	7.9	7.9
50-60Hz, cosφ = 1	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	kW	6.3	6.3
50-60Hz, cosφ = 1	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})		mm²	2.5	2.5
Utilization category AC2 and AC3				
Switching of three-phase motors				
Rated operational current I_e	220V	A	12	15
open and enclosed	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	kW	3	4
50-60Hz	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	220V	A	12	15
open and enclosed	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	kW	3	4
50-60Hz	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_e	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_e	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 max. fuse size	gL (gG)	A	40	40
Coordination-type “2” according to IEC 947-4-1 Light contact welding accepted max. fuse size	gL (gG)	A	25	25
Contact welding not accepted max. fuse size	gL (gG)	A	10	10
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/AC1according 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_e	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_e	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 in multiples of control voltage U_s			19 - 30V DC		
			0.85 - 1.1	0.8 - 1.1	-
Switching time at control voltage U_s ±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	mm²	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5
	flexible	mm²	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5
	flexible with multicore cable end	mm²	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 x 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

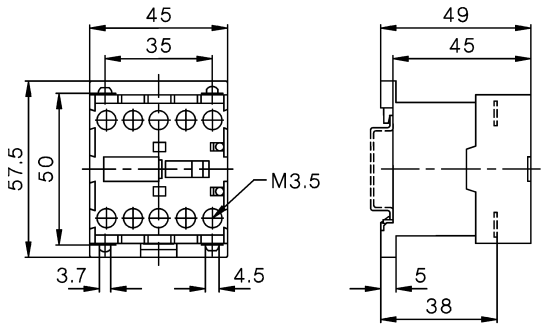
Main Contacts (cULus)		Type	J7KNA-09...	J7KNA-12	J73KN-A...
Rated operational current "General Use"		A	15	20	10
Rated operational power of three-phase motors	115V	hp	1½	2	-
at 60Hz (3ph)	200V	hp	3	3	-
	230V	hp	3	3	-
	460V	hp	5	7½	-
	575V	hp	7½	10	-
Rated operational power of of AC motors	115V	hp	½	¾	-
at 60Hz (1ph)	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	-
Rated voltage		V AC	600	600	600
Auxiliary Contacts (cULus)	heavy pilot duty	AC	A600	A600	A600
	standard pilot duty	DC	Q600	Q600	Q600

■ Dimensions

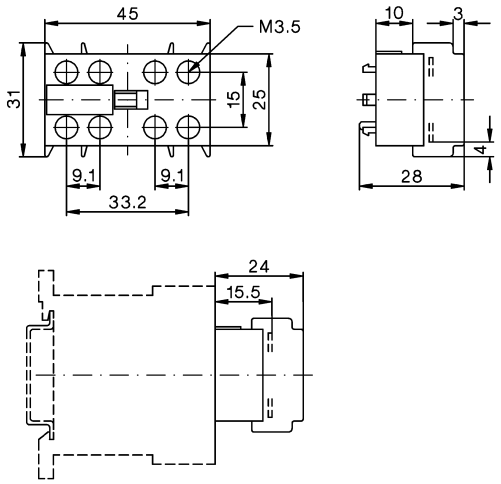
AC and DC operated
with screw terminals

Auxiliary Contact Blocks

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



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.

Cat. No. J506-E2-01

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