OMRON

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 (BGV A2)



Accessories

- 2 and 4 pole additional auxiliary contacts in different configurations
- Mechanical interlock (in reversing contactor combination only)
- RC Suppressors
- Link modules for fuseless Load Feeders
- Insulated wiring systems (parallel, Star-delta combinations)

Approved Standards

Standard	Standard	Guide No (US,C)
UL	VDE 0660	NLDX, NLDX7
ICE 947-5-1	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) R: Reversing Contactor
5) Coil voltage (AC operated)[1)]
   24: AC24V 50/60Hz
   48: AC48V 50Hz
   60: AC60V 50Hz
   110: AC110-115V 50Hz, AC120-125V 60Hz
   180: AC180-210V 50Hz, AC200-240V 60Hz
   230: AC220-230V 50Hz, AC240V 60Hz
   240: AC230V-240V 50Hz
   400: AC380-400V 50Hz, AC440V 60Hz
   415: AC400-415V 50Hz

   Coil voltage (DC operated)
   24D: DC24V
   48D: DC48V
   60D: DC60V
   110D: DC110V
   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) A: for mini motor contactor (DIN EN 50005)
   AM: for mini motor contactor (DIN EN 50012)
3) Combination of NO/NC contacts
   11: 1 NO 1 NC
   02: 0 NO 2 NC
   04: 0 NO 4 NC
   22: 2 NO 2 NC
   40: 4 NO 0 NC
4) for Reversing Contactors
   v: left side
   x: right side

3. Insulated wiring systems for motor contactors

J74-WKR-A
1 2 3

1) Additional reference for LVSG
2) WKR: Wiring Kit Reverser
3) Version

4. Accessories for mini motor contactors/ contactor relays (RC suppressor units)

J74KN-D-RC□□
1 2 3 4

1) Additional reference for LVSG
2) D: J7KNA(-AR)
3) RC = RC suppressor unit
4) Voltage

[1)] See datasheet J7KN Motor Contactor for RC-suppressor units.

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■ System overview

Mini Motor Contactors

AC Operated

	Ratings AC2, AC3 380V 400V 415V kW	500V kW	660V 690V kW	Rated Current AC3 400V A	AC1 690V A	Aux. Contacts NO	NC	Suitable Overload Relay*1	Type Coil Voltage*2 **24** 24V 50/60Hz **230** 220-230V 50Hz	Pack pcs.	Weight 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-□□□□□**	10	0.19

*1) For details see datasheet J7TKN Thermal Overload Relay
*2) Other coil voltages see ***page 6***

DC Solenoid Operated

	Ratings AC2, AC3 380V 400V 415V kW	500V kW	660V 690V kW	Rated Current AC3 400V A	AC1 690V A	Aux. Contacts NO	NC	Suitable Overload Relay*1	Type Coil voltage 24V DC 2,5W	Pack pcs.	Weight kg/pc.
	**3-pole, With Screw Terminals**										
	4	4	4	9	20	1	-	**J7TKN-A**	**J7KNA-09-10-□□□D(-VS)***2	10	0.19
	5.5	5.5	5.5	12	20	1	-	**J7TKN-A**	**J7KNA-12-10-□□□D(-VS)***2	10	0.19
	4	4	4	9	20	-	1	**J7TKN-A**	**J7KNA-09-01-□□□D(-VS)***2	10	0.19
	5.5	5.5	5.5	12	20	-	1	**J7TKN-A**	**J7KNA-12-01-□□□D(-VS)***2	10	0.19

*1) For details see datasheet J7TKN Thermal Overload Relay
*2) with built-in coil suppressor (diode + 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

Link modules for electric connection between MPCB and contactors

	Description	Version for contactors	For MPCB	Type	Pack pcs	Weight approx. kg/pc
	link module (electrical and mechanical connection) See datasheet J7MN Motor Protection Circuit Breaker	J7KNA 09-…12	J7MN 12 / J7MN 25	**J74MN-VK1 12-25**	1	0.015

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Suppressor units

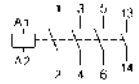
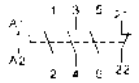
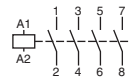
	Function	For Contactors	Voltages	**Partnumber** Type
	RC-Unit snap on 	J7KNA(-AR)	12 - 48 V AC/DC 48 - 127 V AC/DC 110 - 250 V AC/DC	**J74KN-D-RC24** **J74KN-D-RC110** **J74KN-D-RC230**

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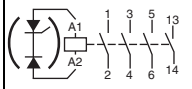
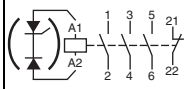
■ System overview

Mini Motor Contactors

AC Operated

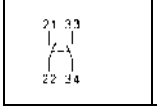
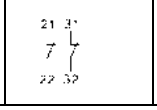
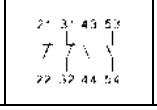
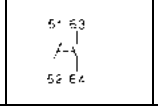
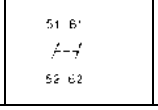
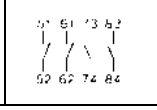
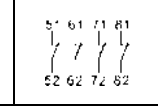
Wiring Diagrams	Distinc. Number according to DIN EN 50012	Auxiliary Contact Blocks Type	NO	NC	Contactor with Auxiliary Contact Block Distinc. Number according to DIN EN 50012	NO	NC	Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror 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	
		J73KN-A-04	0	4	-	0	5	
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	
		J73KN-A-04	0	4	-	0	4	

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) Mirror 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	
		J73KN-A-04	0	4	-	0	5	

( ) = VS-Version

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

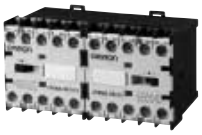
Wiring Diagrams								Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts
J73KN-AM-11	**J73KN-AM-02**	**J73KN-AM-22**	**J73KN-A-11**	**J73KN-A-02**	**J73KN-A-40**	**J73KN-A-22**	**J73KN-A-04**	
								

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■ System overview

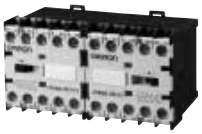
Mini Reversing Contactors, Mechanical Interlocked

AC Operated

	Ratings AC2, AC3 380V 400V 415V kW	500V kW	660V 690V kW	Rated Current AC3 400V A	AC1 690V A	Aux. Contacts NO	NC	Suitable Overload Relay*1	Type Coil Voltage*2 24 24V 50/60Hz 230 220-230V 50Hz	Pack pcs.	Weight kg/pc.
	**3-pole, With Screw Terminals**										
	4	4	4	9	20	-	1	**J7TKN-A**	**J7KNA-09-01-R-□□□□□**	1	0.32
	5.5	5.5	5.5	12	20	-	1	**J7TKN-A**	**J7KNA-12-01-R-□□□□□**	1	0.32

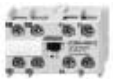
*1) For details see datasheet J7TKN Thermal Overload Relay
*2) Other coil voltages see ***page 6***

DC Solenoid Operated

	Ratings AC2, AC3 380V 400V 415V kW	500V kW	660V 690V kW	Rated Current AC3 400V A	AC1 690V A	Aux. Contacts NO	NC	Suitable Overload Relay*1	Type Coil voltage 24V DC 2,5W	Pack pcs.	Weight kg/pc.
	**3-pole, With Screw Terminals**										
	4	4	4	9	20	-	1	**J7TKN-A**	**J7KNA-09-01-R-□□□D(-VS)***2	1	0.38
	5.5	5.5	5.5	12	20	-	1	**J7TKN-A**	**J7KNA-12-01-R-□□□D(-VS)***2	1	0.38

*1) For details see datasheet J7TKN Thermal Overload Relay
*2) with built-in coil suppressor (diode + zener diode)

Auxiliary contact blocks with screw terminals for contactors J7KNA-09-01-R…(D) and J7KNA-12-01-R…(D)

	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-11V**	10	0.04
	1	1	3	2	10	**J73KN-AM-11X**	10	0.04

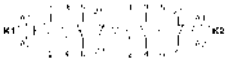
Insulated wiring systems for contactors J7KNA-09-01-R…(D) and J7KNA-12-01-R…(D)

	Description	Version (A)	For contactors	Type	Pack pcs
	Reversing Starter Connector with Coil Connector for Mini Reversing Contactors, mechanical interlocked	16	J7KNA-09-01-R…(D) & J7KNA-12-01-R…(D)	**J74-WKR-A**	1

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■ System overview

Mini Motor Contactors
AC/DC solenoid operated

Wiring Diagrams	Distinc. Number according to DIN EN 50012	Auxiliary Contact Blocks suitable for left hand side Contactor K1 Type	NO	NC	right hand side Contactor K2 Type	NO	NC	Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts
3-pole, With Screw Terminals								
	01	**J73KN-AM-11V**	1	1	**J73KN-AM-11X**	1	1	

Auxiliary contact blocks with screw terminals for contactors J7KNA-09-01-R…(D) and J7KNA-12-01-R…(D)

Wiring Diagrams						Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) Mirror contacts
J73KN-AM-11V	**J73KN-AM-11X**					
						

Specifications

■ Coil Voltages

Suffix to contactor type e.g. **J7KNA-09-10-24**	Voltage Marking at the coil for 50Hz V	for 60Hz V	Rated Control Voltage U_s range for 50Hz min V.	max V.	60Hz min V.	max V.
24	**24**	**24**	**22**	**24**	**24**	**24**
48	48	48	48	50	48	52
100	100	110-115	100	105	110	115
110	110-115	120-125	110	115	120	125
200	200	210-220	195	205	210	220
230	**220-230**	**240**	**220**	**230**	**240**	**250**
400	380-400	440	380	400	415	440
550	525-550	600	525	550	570	600

Standard voltages in bold type letters. Coil not exchangeable

Please see datasheet J7KN Motor Contactor for RC-suppressor units.

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■ 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

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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

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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

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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)[*1] J7KNA-12…D(VS)	J73KN-A…
Rated insulation voltage U_i		V AC	690[*2]	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)[*3]		
	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			0.85 - 1.1	0.8 - 1.1	-
Switching time at control voltage U_c ±10%[*4,*5]					
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 (35)[*1]	-
	arc duration	ms	-	10 -15	-

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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)*1 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) version „VS“
*2) 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.
*3) 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
*4) Summary switching time = release time + arc duration
*5) 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 (SCCR)		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

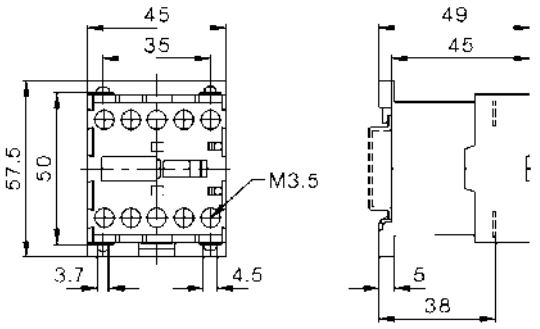
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■ Dimensions

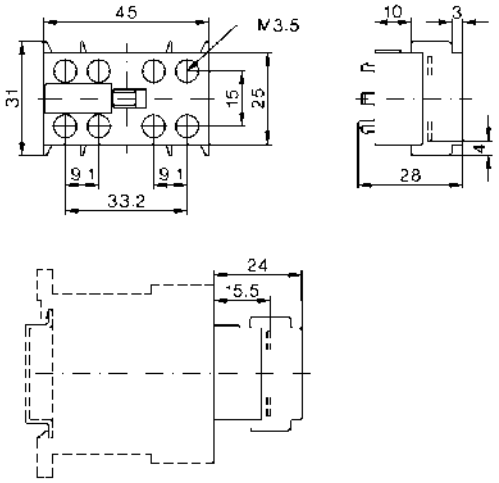
AC and DC operated
with screw terminals

Auxiliary Contact Blocks

J7KNA-09…
J7KNA-12…

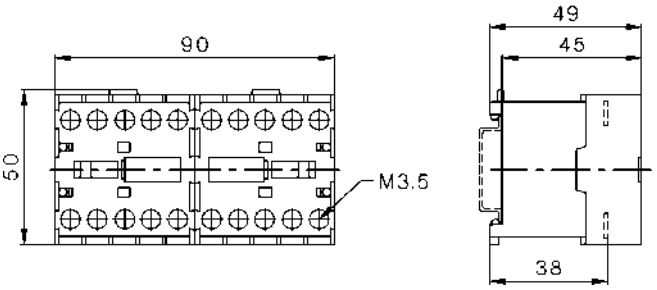


J73KN-A…

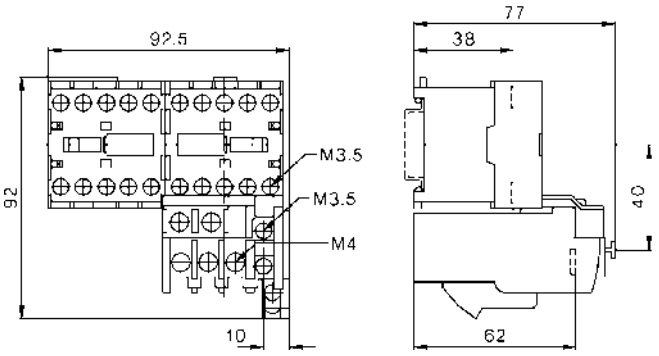


Reversing Contactors

J7KNA-09-01-R…
J7KNA-12-01-R…

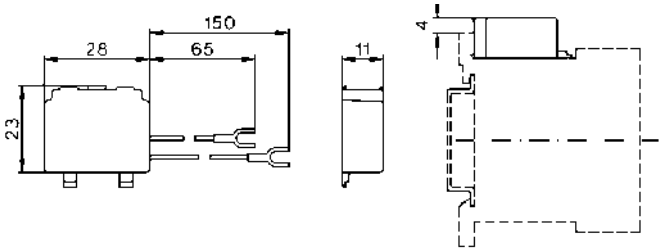


J7KNA-09-01-R… + J7TKN-A
J7KNA-12-01-R…+ J7TKN-A



Suppressor units

J74KN-D-RC...



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. J05E-EN-04 In the interest of product improvement, specifications are subject to change without notice.

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