

Mini Contactor Relays 4-pole J7KNA-AR

Main contactor

- AC & DC operated
- 4-, 6- and 8-pole versions in different configurations
- Screw fixing and snap fitting (35 mm DIN rail)
- Rated current = 10A (I_{th})
- Suitable for electronic devices (DIN 19240)
- Finger proof (BGV A2)

Accessories

- 2- and 4-pole additional auxiliary contacts in different configurations



Approved Standards

| Standard | Guide No (US,C) |
|--------------|-----------------|
| UL | NKCR, NKCR7 |
| IEC 947-5-1 | see page 95 |
| VDE 0660 | |
| EN 60947-5-1 | |

Ordering Information

Model Number Legend

1. Mini Contactor Relays

J7KNA-□□-□□-□□□□

1 2 3 4

- 1) Mini Contactor
- 2) AR: Contactor Relay
- 3) Combination of NO / NC contacts
 - 22: 2 NO 2 NC
 - 31: 3 NO 1 NC
 - 40: 4 NO 0 NC
- 4) Coil voltage (AC operated)
 - 24: AC24V 50/60Hz
 - 48: AC48V 50Hz
 - 110: AC110-115V 50Hz, AC120-125V 60Hz
 - 230: AC220-230V 50Hz, AC240V 60Hz
 - 240: AC230-240V 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
 - 60D: DC60V
 - 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 Contactor Relays

J73KN-□□-□□-□

1 2 3 4

- 1) Auxiliary Contact Modules
- 2) A: for mini contactor relays
- 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

3. 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

■ System overview


Mini Contactor Relays 4-pole

AC Operated

| | Contacts | | Distinc. Number acc. to DIN EN 50011 | Ratings | | Thermal Rated Current I_n A | Type | Pack | Weight |
|---|------------------------------|----|--------------------------------------|-------------------|-----------|-------------------------------------|------------------------|------|--------|
| | NO | NC | | AC15 230V A | 400V A | | | | |
|  | 4-pole, With Screw Terminals | | | | | | | | |
| | 4 | - | 40E | 3 | 2 | 10 | J7KNA-AR-40 24 | 10 | 0,16 |
| | | | | | | | J7KNA-AR-40 230 | | |
| | 3 | 1 | 31E | 3 | 2 | 10 | J7KNA-AR-31 24 | 10 | 0,16 |
| | | | | | | | J7KNA-AR-31 230 | | |
| | 2 | 2 | 22E | 3 | 2 | 10 | J7KNA-AR-22 24 | 10 | 0,16 |
| | | | | | | | J7KNA-AR-22 230 | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |


1) Other coil voltages see page 4

DC Solenoid Operated


| | Contacts | | Distinc. Number acc. to DIN EN 50011 | Ratings | | Thermal Rated Current I_n A | Type | Pack | Weight |
|---|------------------------------|----|--------------------------------------|-------------------|-----------|-------------------------------------|---|------|--------|
| | NO | NC | | AC15 230V A | 400V A | | | | |
|  | 4-pole, With Screw Terminals | | | | | | | | |
| | 4 | - | 40E | 3 | 2 | 10 | J7KNA-AR-40 24D (-VS)¹⁾ | 10 | 0,19 |
| | | | | | | | | | |
| | 3 | 1 | 31E | 3 | 2 | 10 | J7KNA-AR-31 24D (-VS)¹⁾ | 10 | 0,19 |
| | | | | | | | | | |
| | 2 | 2 | 22E | 3 | 2 | 10 | J7KNA-AR-22 24D (-VS)¹⁾ | 10 | 0,19 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

1) with built-in coil suppressor (diode + zener diode)

Auxiliary Contact Blocks for Contactor Relays J7KNA-AR

| | Contacts | | Ratings | | Thermal Rated Current I_n A | Type | Pack | Weight |
|---|----------|----|-------------------|-----------|-------------------------------------|-------------------|------|--------|
| | NO | NC | AC15 230V A | 400V A | | | | |
|  | 1 | 1 | 3 | 2 | 10 | J73KN-A-11 | 10 | 0,04 |
| | - | 2 | 3 | 2 | 10 | J73KN-A-02 | 10 | 0,04 |
| | 4 | - | 3 | 2 | 10 | J73KN-A-40 | 10 | 0,04 |
| | 2 | 2 | 3 | 2 | 10 | J73KN-A-22 | 10 | 0,04 |

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 |

■ System overview

Mini Contactor Relays 4-pole

AC Operated

| Wiring Diagrams | Distinc. Number acc. to DIN EN 50011 | Auxiliary Contact Blocks | | Contactor Relay with Auxiliary Contact | | | Contacts suitable for Electronic Circuits according to DIN 19240 for rated voltage 24V DC (test ratings 17V DC, 5mA) | |
|------------------------------|--------------------------------------|--------------------------|----|--|---|----|--|---|
| | | Type | NO | NC | Block Distinc. Number according to DIN EN 50011 | NO | | NC |
| 4-pole, With Screw Terminals | | | | | | | | |
| | 40E | J73KN-A-11 | 1 | 1 | 51E | 5 | 1 | Preferable combinations with distinctive letter "E" according to DIN EN 50011 |
| | | J73KN-A-02 | 0 | 2 | 42E | 4 | 2 | |
| | | J73KN-A-40 | 4 | 0 | 80E | 8 | 0 | |
| | | J73KN-A-22 | 2 | 2 | 62E | 6 | 2 | |
| | 31E | J73KN-A-11 | 1 | 1 | 42Y | 4 | 2 | |
| | | J73KN-A-02 | 0 | 2 | 33Y | 3 | 3 | |
| | | J73KN-A-40 | 4 | 0 | 71Y | 7 | 1 | |
| | | J73KN-A-22 | 2 | 2 | 53Y | 5 | 3 | |
| | 22E | J73KN-A-11 | 1 | 1 | 33Y | 3 | 3 | |
| | | J73KN-A-02 | 0 | 2 | 24Y | 2 | 4 | |
| | | J73KN-A-40 | 4 | 0 | 62Y | 6 | 2 | |
| | | J73KN-A-22 | 2 | 2 | 44Y | 4 | 4 | |

DC Solenoid Operated

| Wiring Diagrams | Distinc. Number acc. to DIN EN 50011 | Auxiliary Contact Blocks | | Contactor Relay with Auxiliary Contact | | | | |
|------------------------------|--------------------------------------|--------------------------|----|--|---|----|---|---|
| | | Type | NO | NC | Block Distinc. Number according to DIN EN 50011 | NO | | NC |
| 4-pole, With Screw Terminals | | | | | | | | |
| | 40E | J73KN-A-11 | 1 | 1 | 51E | 5 | 1 | Preferable combinations with distinctive letter "E" according to DIN EN 50011 |
| | | J73KN-A-02 | 0 | 2 | 42E | 4 | 2 | |
| | | J73KN-A-40 | 4 | 0 | 80E | 8 | 0 | |
| | | J73KN-A-22 | 2 | 2 | 62E | 6 | 2 | |
| | 31E | J73KN-A-11 | 1 | 1 | 42Y | 4 | 2 | |
| | | J73KN-A-02 | 0 | 2 | 33Y | 3 | 3 | |
| | | J73KN-A-40 | 4 | 0 | 71Y | 7 | 1 | |
| | | J73KN-A-22 | 2 | 2 | 53Y | 5 | 3 | |
| | 22E | J73KN-A-11 | 1 | 1 | 33Y | 3 | 3 | |
| | | J73KN-A-02 | 0 | 2 | 24Y | 2 | 4 | |
| | | J73KN-A-40 | 4 | 0 | 62Y | 6 | 2 | |
| | | J73KN-A-22 | 2 | 2 | 44Y | 4 | 4 | |

Auxiliary Contact Blocks for Contactor Relays J7KNA-AR

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

Specifications

■ Coil Voltages

| Suffix to contactor type e.g. J7KNA-AR-40-24 | Voltage Marking at the coil | | Rated Control Voltage U _s range for | | | |
|---|--------------------------------|---------------|---|-----------|-----------|-----------|
| | for 50Hz V | for 60Hz V | 50Hz | | 60Hz | |
| | | | 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 |
| 48 | 48-50 | 48 | 48 | 50 | 48 | 50 |
| 60 | 60 | 60 | 52 | 66 | 54 | 60 |
| 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-AR-40- 230 | Voltage Marking at the coil | | Rated Control Voltage U _s range for | | | |
|---|--------------------------------|---------------|---|------------|------------|------------|
| | for 50Hz V | for 60Hz V | 50Hz | | 60Hz | |
| | | | 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 Contactor Relays

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

| Auxiliary Contacts | | Type | AC J7KNA-AR... | DC J7KNA-AR...D | DC + Diode J7KNA-AR...VS | J73KN-A... |
|--|-----------------------------------|-----------------|--------------------------------|--------------------|-----------------------------|-------------------|
| Rated insulation voltage U_i | | V AC | 690 ^{*1} | 690 ^{*1} | 690 ^{*1} | 690 ^{*1} |
| Thermal rated current I_{th} to 690V | | | | | | |
| Ambient temperature | 40°C | A | 10 | 10 | 10 | 10 |
| | 60°C | A | 6 | 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 | 3 |
| | 380-415V | A | 2 | 2 | 2 | 2 |
| | 440V | A | 1.6 | 1.6 | 1.6 | 1.6 |
| | 500V | A | 1.2 | 1.2 | 1.2 | 1.2 |
| | 660-690V | A | 0.6 | 0.6 | 0.6 | 0.6 |
| Utilization category DC13 | | | | | | |
| Rated operational current I_e | 60V | A | 2 | 2 | 2 | 2 |
| | 110V | A | 0.4 | 0.4 | 0.4 | 0.4 |
| | 220V | A | 0.1 | 0.1 | 0.1 | 0.1 |
| Maximum ambient temperature | | | | | | |
| Operation | open | °C | -40 to +60 (+90) ^{*2} | | | |
| | enclosed | °C | | | | |
| 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 | 20 |
| Power consumption of coils | | | | | | |
| AC operated | inrush | VA | 25 | - | - | - |
| | sealed | VA | 4 - 5 | - | - | - |
| | | W | 1.2 | - | - | - |
| DC operated | inrush | W | - | 2.5 | 2.5 | - |
| | sealed | W | - | 2.5 | 2.5 | - |
| Operation range of coils | | | | | | |
| in multiples of control voltage U_s | | | 0.85 - 1.1 | 0.8 - 1.1 | 0.8 - 1.1 | - |
| Switching time at control voltage $U_c \pm 10\%$^{*3,*4} | | | | | | |
| AC operated | make time | ms | 15 - 19 | - | - | - |
| | release time | ms | 8 - 25 | - | - | - |
| | arc duration | ms | 10 - 15 | - | - | - |
| DC operated | make time | ms | - | 15 - 25 | 15 - 25 | - |
| | release time | ms | - | 8 - 25 | 8 - 25 | - |
| | arc duration | ms | - | 10 - 15 | 10 - 15 | - |
| Cable cross-section | | | | | | |
| all connectors | solid | mm ² | 0.75 - 2.5 | 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 | 0.75 - 2.5 |
| | flexible with multicore cable end | mm ² | 0.5 - 1.5 | 0.5 - 1.5 | 0.5 - 1.5 | 0.5 - 2.5 |
| Clamps per pole | | | 2 | 2 | 2 | 2 |
| | solid or stranded | AWG | 18 - 14 | 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 Contactor Relays for North America

Data according to UL508

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

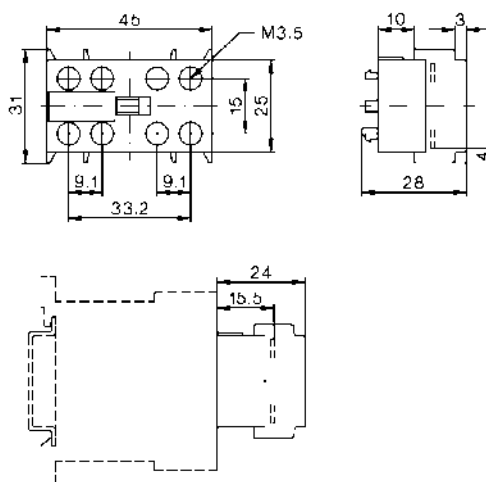
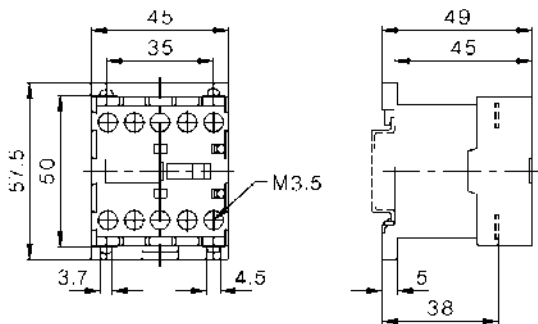
■ Dimensions

AC and DC operated
with screw terminals

Auxiliary Contact Blocks

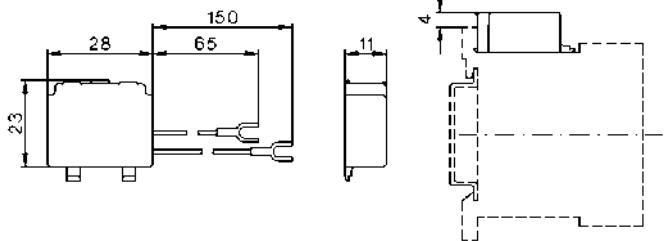
J7KNA-AR...

J73KN-A...



Suppressor units

J74KN-D-RC...



Do not use/install these products before having read the applicable precautions as listed in Cat. No. J09-EN-01 available from www.europe.omron.com or on request from OMRON local sales office.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.