

# Mini Contactor Relays 4-pole J7KNA-AR

## Main contactor

- AC & DC operated
- 4-, 6- and 8-pole versions in different configurations
- Mirror contacts
- 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

## ■ System overview


### Mini Contactor Relays 4-pole

AC Operated

|   | Contacts                     |    | Distinc. Number acc. to DIN EN 50011 | Ratings           |           | Thermal Rated Current<br>$I_{th}$<br>A | Type            | Pack | Weight |
|---|------------------------------|----|--------------------------------------|-------------------|-----------|--|-----------------|------|--------|
|   | NO                           | NC |                                      | AC15<br>230V<br>A | 400V<br>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 10

### DC Solenoid Operated

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

## ■ 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) Mirror contacts |    |   |
|-------------------------------------|--------------------------------------|--------------------------|----|--|---|--|----|---|
|                                     |                                      | Type                     | NO | NC                                     | Block Distinc. Number according to DIN EN 50011 |  | NO | NC  |
| <b>4-pole, With Screw Terminals</b> |                                      |                          |    |  |   |  |    |   |
|                                     | 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  |
| <b>4-pole, With Screw Terminals</b> |                                      |                          |    |  |   |   |    |   |
|                                     | 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) Mirror contacts |
|-----------------|------------|------------|------------|--|
| J73KN-A-11      | J73KN-A-02 | J73KN-A-40 | J73KN-A-22 |  |
|                 |            |            |            |  |

# Specifications

## ■ Coil Voltages

| Suffix<br>to contactor type e.g.<br><b>J7KNA-AR-40-24</b> | Voltage Marking<br>at the coil |               | Rated Control Voltage $U_s$<br>range for |           |           |           |
|---|--------------------------------|---------------|--|-----------|-----------|-----------|
|   | for 50Hz<br>V                  | for 60Hz<br>V | 50Hz                                     |           | 60Hz      |           |
|   |                                |               | min<br>V.                                | max<br>V. | min<br>V. | max<br>V. |
| 12  | 12                             | 12            | 11                                       | 12        | 12        | 12        |
| <b>24</b>   | <b>24</b>                      | <b>24</b>     | <b>22</b>                                | <b>24</b> | <b>24</b> | <b>24</b> |
| 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<br>to contactor type e.g.<br><b>J7KNA-AR-40- 230</b> | Voltage Marking<br>at the coil |               | Rated Control Voltage $U_s$<br>range for |            |            |            |
|---|--------------------------------|---------------|--|------------|------------|------------|
|   | for 50Hz<br>V                  | for 60Hz<br>V | 50Hz                                     |            | 60Hz       |            |
|   |                                |               | min<br>V.                                | max<br>V.  | min<br>V.  | max<br>V.  |
| 210   | 205-215                        | 220-230       | 205                                      | 215        | 220        | 230        |
| 220   | 210-220                        | 230-240       | 210                                      | 220        | 230        | 240        |
| <b>230</b>  | <b>220-230</b>                 | <b>240</b>    | <b>220</b>                               | <b>230</b> | <b>240</b> | <b>250</b> |
| 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<br>J7KNA-AR...              | DC<br>J7KNA-AR...D | DC + Diode<br>J7KNA-AR...VS | J73KN-A...        |
|---|-----------------------------------|-----------------|--------------------------------|--------------------|-----------------------------|-------------------|
| <b>Rated insulation voltage <math>U_i</math></b>  |                                   | V AC            | 690 <sup>*1</sup>              | 690 <sup>*1</sup>  | 690 <sup>*1</sup>           | 690 <sup>*1</sup> |
| <b>Thermal rated current <math>I_{th}</math> to 690V</b>                                      |                                   |                 |                                |                    |                             |                   |
| Ambient temperature   | 40°C                              | A               | 10                             | 10                 | 10                          | 10                |
|   | 60°C                              | A               | 6                              | 6                  | 6                           | 6                 |
| <b>Power loss per pole</b>  | at $I_{th}$                       | W               | 0.5                            | 0.5                | 0.5                         | 0.5               |
| <b>Utilization category AC15</b>  |                                   |                 |                                |                    |                             |                   |
| 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               |
| <b>Utilization category DC13</b>  |                                   |                 |                                |                    |                             |                   |
| 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               |
| <b>Maximum ambient temperature</b>  |                                   |                 |                                |                    |                             |                   |
| Operation   | open                              | °C              | -40 to +60 (+90) <sup>*2</sup> |                    |                             |                   |
|   | enclosed                          | °C              |                                |                    |                             |                   |
| Storage   |                                   | °C              | -40 to +90                     |                    |                             |                   |
| <b>Short circuit protection</b><br>short-circuit current 1kA,<br>contact welding not accepted |                                   |                 |                                |                    |                             |                   |
| max. fuse size  | gL (gG)                           | A               | 20                             | 20                 | 20                          | 20                |
| <b>Power consumption of coils</b>   |                                   |                 |                                |                    |                             |                   |
| 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                         | -                 |
| <b>Operation range of coils</b><br>in multiples of control voltage $U_s$                      |                                   |                 | 0.85 - 1.1                     | 0.8 - 1.1          | 0.8 - 1.1                   | -                 |
| <b>Switching time at control voltage <math>U_s \pm 10\%</math><sup>*3,*4</sup></b>            |                                   |                 |                                |                    |                             |                   |
| AC operated   | make time                         | ms              | 15 - 25                        | -                  | -                           | -                 |
|   | release time                      | ms              | 8 - 25                         | -                  | -                           | -                 |
|   | arc duration                      | ms              | 10 - 15                        | -                  | -                           | -                 |
| DC operated   | make time                         | ms              | -                              | 15 - 19            | 15 - 19                     | -                 |
|   | release time                      | ms              | -                              | 8 - 25             | 8 - 25                      | -                 |
|   | arc duration                      | ms              | -                              | 10 - 15            | 10 - 15                     | -                 |
| <b>Cable cross-section</b>  |                                   |                 |                                |                    |                             |                   |
| all connectors  | solid                             | mm <sup>2</sup> | 0.75 - 2.5                     | 0.75 - 2.5         | 0.75 - 2.5                  | 0.75 - 2.5        |
|   | flexible                          | mm <sup>2</sup> | 0.75 - 2.5                     | 0.75 - 2.5         | 0.75 - 2.5                  | 0.75 - 2.5        |
|   | flexible with multicore cable end | mm <sup>2</sup> | 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                  | -           | -          |
|  | 460V | hp                  | -           | -          |
|  | 575V | hp                  | -           | -          |
| Rated operational power of of AC motors at 60Hz (1ph)            | 115V | hp                  | -           | -          |
|  | 200V | hp                  | -           | -          |
|  | 230V | hp                  | -           | -          |
| Fuses  |      | A                   | -           | -          |
| Suitable for use on a capability of delivering not more than rms |      | A                   | -           | -          |
|  |      | V                   | -           | -          |
| Rated voltage  |      | V AC                | 600         | 600        |
| <b>Auxiliary Contacts (cULus)</b>                                |      | heavy pilot duty    | AC          | A600       |
|  |      | standard pilot duty | DC          | Q600       |

## ■ Dimensions

AC and DC operated  
with screw terminals

Auxiliary Contact Blocks

J7KNA-AR...

J73KN-A...



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](http://www.europe.omron.com) or on request from OMRON local sales office.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.